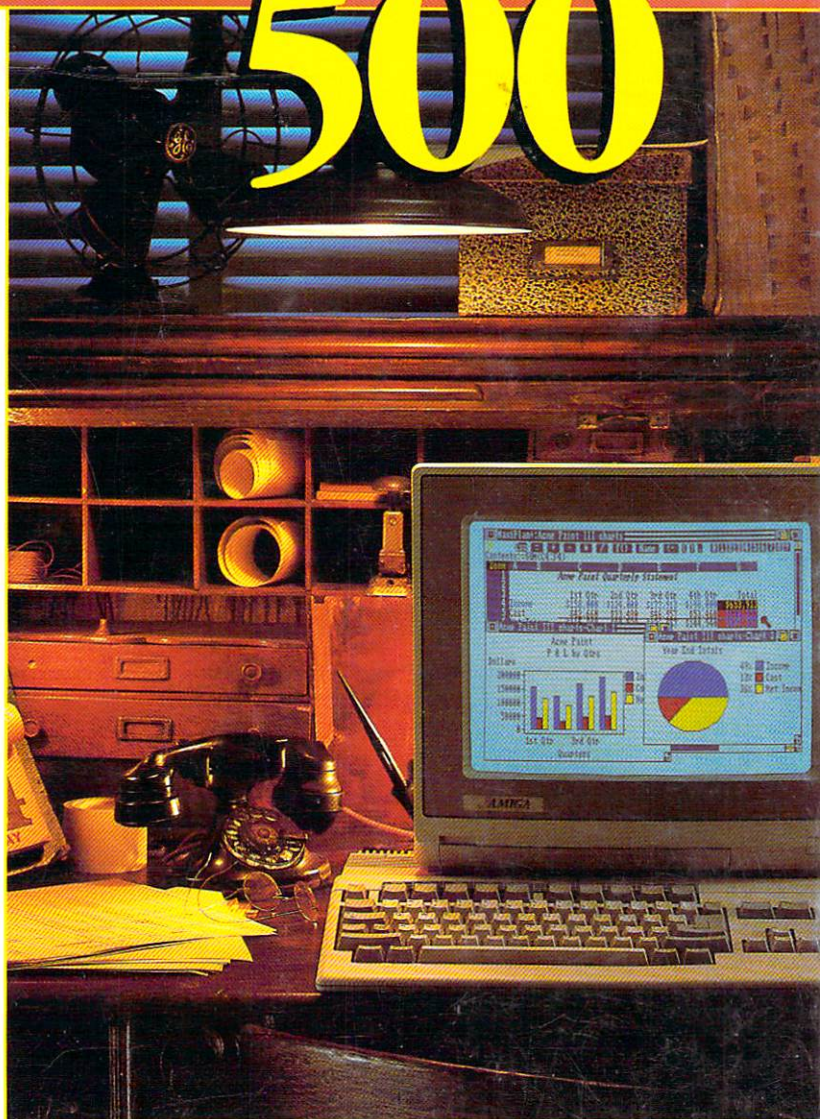


MAXIPLAN 500

- Spreadsheet Analysis
 - Database Management
 - Business Graphics
- for Informed Business Solutions

**VOTED BEST
SPREADSHEET
AMIGA 1986**



Developed by Intuitive Technologies



**A Programming
Facility for
MaxiPlan 500**

The Advanced Amiga Spreadsheet

- **Spreadsheet Analysis**
- **Database Management**
- **Business Graphics**

For Informed Business Solutions

Release 1.8 July 1987

From: Oxxi, Inc.

Developed by : Intuitive Technologies

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Chapter 1

MaxiPlan OVERVIEW

MaxiPlan was conceived to be the most Amiga-like spreadsheet program possible. The Amiga is known for outstanding graphic capabilities, multitasking, multiwindows, and sound. MaxiPlan has adopted all of these features to make spreadsheet analysis on the Amiga both easy and beneficial to the business user with its many sophisticated features. to quote Erwin Bobo of Amiga Buyer's Guide, "MaxiPlan...That's power as well as ease-of-use. Those parameters sum up the intent of MaxiPlan. Along the way it (also) succeeds in being a pleasure to work with."

Our two versions of MaxiPlan, MaxiPlan 500 and MaxiPlan Plus offer many features not found on any other spreadsheet on any other machine. Both incorporate the custom palette, multitasking, multiwindows, multiple command interface, and voice output of the Amiga. Each Cell or any Range can be formatted for color, type style, and sound. Formats can be made to change dependent on data or analytical results.

With a few mouse clicks, your results can be displayed in any of ten Chart styles including X-Y, 3D Bar, 3D Pie, Exploding Pie, Step, Area, Line, Hi-Low, etc. MaxiPlan allows two-way dynamic linkage of data and Charts as well.

MaxiPlan's database capabilities enable the user to create up to 64 different databases and criteria specifications per Worksheet. Any number of Fields can be incorporated in simultaneous ascending and descending sorts.

MaxiPlan 500 includes all of the above features in a format optimized to run in a 512K environment. MaxiPlan Plus also includes the above features along with a Macro Language facility similar to Microsoft Excel. MaxiPlan Plus can run on 512K, but we recommend 1 meg of memory for best performance.

MaxiPlan incorporates three analytical tools:

- Spreadsheet tools for calculations and modeling**
- Graphic tools for visual depiction of analytical results**
- Database tools for sorting and extracting**

And with 512 columns and 65,530 rows there is plenty of room for extensive Databases or Worksheets.

MaxiPlan Spreadsheet Tools

As a spreadsheet, MaxiPlan offers a multitude of methods to interact with the program. In addition, it is the only spreadsheet program that allows for complete mouse input of formulas and functions. Major spreadsheet features include:

Multiple User interfaces including:

- **Function Keys**
- **Pull Down Menus**
- **Requesters**
- **Icons**
- **Cursor Keys**
- **Mouse**
- **Control Keys**
- **Multiple Windows for Cut/Copy/Paste within and between Worksheets**

Named Ranges

Password Protection

Zoom Mode for the Big Picture

Linking between Worksheets

Lotus 1-2-3 compatibility

Written or spoken Cell Notes

Over 95 built-in Functions

8 color custom palette

Bold, Italics, Underline and Color Type Styles

Formulas can be completely entered with the mouse

Actively Used Rows and Columns Determines Worksheet Size for easy Scrolling

MaxiPlan Chart Tools

Graphic representation of data by MaxiPlan is characterized by ease of use. An entire Menu is devoted to designing Charts. Chart features include:

- **Any combination of 8 charts per worksheet**
- **Chart styles: x-y (scatter), pie, bar, line, and area**

- **Dynamic linkage of data and charts for instant updates**
- **3-D Bar, 3-D pie charts, Exploding Pie Charts**
- **IFF Files for export to Word Processing and Paint Programs**

MaxiPlan Database Tools

As a Database, MaxiPlan has several outstanding features. Any set of Rows and Columns can be designated as a Database. Records, or Rows, can be sorted by simultaneous ascending or descending ranks on any number of Columns and any order. Database features include:

- **Access up to 63 user defined Databases per Worksheet**
- **Sorting of Records by up to 63 different Criteria per Database**
- **Records can be selectively calculated**
- **Specific Records can be extracted and copied elsewhere on the Worksheet**
- **Named references to Databases and Criteria for ease of use**

More Power with Macro Language

The Plus version of MaxiPlan incorporates the power of Microsoft Excel (registered trademark) like Macro Language. This language allows you to

- **automate complicated Worksheet activities**
- **create templates for data entry**
- **design interactive demos**
- **set up a conditional analysis based on prior data**
- **exchange data between Worksheets**
- **maintain Mail Lists**
- **automatic creation and printing of invoices**
- **incorporate Text only files from other Amiga programs with MaxiPlan.**

The Macro Language features of MaxiPlan Plus include:

- **Up to 64 macros can be defined per Macrosheet**
- **Automatic generation of macros under Record Mode**
- **Over 95 Macro Functions in the Language**

In addition, MaxiPlan Plus comes with Utilities for mail merging and print spooling.

The following Chapter is an introduction to MaxiPlan Tutorial and Reference Guide. The Tutorial section offers instruction on how to use MaxiPlan, while the Reference section gives details on commands and functions.

All users of MaxiPlan should review how to enter MaxiPlan in the chapter entitled "ENTERING MaxiPlan: THE CONTROL WINDOW", and then move onto a description of the MaxiPlan Worksheet window in section "THE MaxiPlan WORKSHEET WINDOW".

Less experienced users should then turn to "WORKSHEET BASICS", and then go over each of the lessons in turn. More experienced users can review the chapter entitled "ADVANCED SAMPLE WORKSHEET". This gives a quick flavor for how to use MaxiPlan, but is not intended to substitute for the remainder of the manual.

Chapter 2

INTRODUCTION

MaxiPlan has been designed to be easy for the first time spreadsheet user to learn while not sacrificing the power requirements of the sophisticated spreadsheet analyst.

This Introduction is intended to only cover the information that is useful to know before entering MaxiPlan as well as be a brief discussion on MaxiPlan's conventions. The remainder of this manual goes into much greater depth on the capabilities of MaxiPlan.

In the following chapter you will build a sample spreadsheet, or Worksheet in MaxiPlan terminology. You will find MaxiPlan so easy to learn that in just a few minutes you will be able to create your first worksheet. You will then be able to see applications for MaxiPlan worksheets in your everyday computer work.

Once the Worksheet is designed, you will then ask yourself your first "What if?", that is what will happen to the Worksheet if a number is changed or an assumption for a calculation altered.

BEFORE GETTING STARTED

1. MaxiPlan is NOT COPY PROTECTED. Before using the Program Disk and the Data/Utilities Disk make backup copies. See your Amiga Manual, Introduction to Amiga, for instructions on how to Copy Disks.
2. Once you have made your backup copies, put your original Program Disk and Data/Utilities Disk away for safe keeping.
3. Use your backup copy of the Program Disk to go through the examples discussed in this chapter as well as the remainder of this manual.
4. The MaxiPlan Program Disk is a bootable disk. Thus your backup copy of the Program Disk can be inserted into the computer rather than the Workbench Disk.
5. Since you will need to print your Worksheet as part of the Tutorial, you should make sure your printer and your Amiga have been properly configured together. Under the Workbench is a Program called Preferences. This Program contains installation parameters for setting up the computer to work with your printer. Again see Introduction to Amiga for further instructions on how to set up Preferences for your printer.

6. Included in the MaxiPlan package are two Function Key Command Strips. One is for the Amiga 500 and 1000, and another for the Amiga 2000. Be sure to put the Function Key Command Strip across the top of the keyboard to help you remember the correct action or command for each Function Key.

MaxiPlan's Conventions

MaxiPlan has a forgiving nature, but it does require certain consistent behavior on your part. It has been our experience that the best way to learn is to start using MaxiPlan now, so after reviewing this section turn to next Chapter: "UP AND RUNNING IN TEN MINUTES".

Mouse Buttons

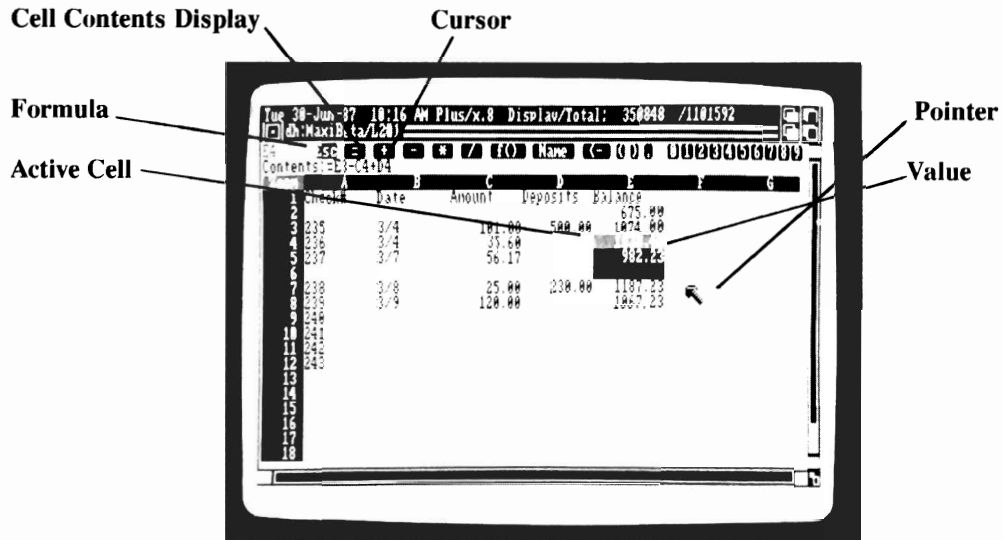
The Amiga mouse comes with a left and right mouse button. When using MaxiPlan, the Mouse buttons function as follows:

Menu Button (Right): Used to pull down Menus and to Select Menu Items and Submenu Items by positioning the Pointer within the Menu or Submenu

Select Button (Left): Used to click on icons, select file names in Requester windows, select or highlight Ranges, activate Scroll Bars, click on OK or Exit buttons for Requesters, activate Window Sizing Gadget, clicking on Window Close Gadget.

It is possible to select multiple Menu Items using both mouse buttons. You should press the Menu (right) mouse button to pull down the Menu and move the highlight stripe to the Menu Item. While pressing the right mouse button, press the Select (left) mouse button successively on the Menu Items to be selected.

The following illustration points out the location of some of MaxiPlan's tools on the Worksheet window.



Active Cell versus the Cursor

The Active Cell is the site of all current input on the Worksheet. It is the Cell that is highlighted when selected with the left mouse button.

In contrast, the Cursor is the sight of current input in the Cell Contents Display for the Active Cell. To activate the Cursor, the Pointer must be placed in the Cell Contents Display and the left mouse button depressed, or simply start keying in information. The data keyed into the Cell Contents Display is accepted by pressing the RETURN key. The result of the entry is then displayed in the Active Cell.

Selecting or Highlighting Ranges

To select a Range, click on the first Cell with the Select (left) mouse button and then while still holding down the left mouse button, drag the Pointer across the Range of cells to be selected. The selected Range will be highlighted with the Active Cell highlighted in a contrasting color from the rest of the Range.

Another MaxiPlan convention is to separate the upper left-hand Cell of the Range from the lower right-hand Cell of the Range with a colon ":". Thus a Range is displayed in the Cell Contents Display as: (A12:D20).

A faster method to select or highlight a Range is to,
 click on the upper left-hand Cell of the Range
 point to the lower right-hand Cell

press the Shift Key and while continuing to press the Shift Key, click on the lower right-hand Cell of the Range with the left mouse button.

Named Ranges, Databases, and Database Criteria

Each Worksheet gives you 64 named objects. Up to 63 Databases can be specified per Worksheet, if only one Database Criteria is defined. Conversely, 63 Database Criterion can be defined if only one Database is defined.

Each of these named objects is listed on the MaxiPlan Name Selector Requester. Thus there can not be duplicate names for named objects associated with the same Worksheet.

Double Menus

Many MaxiPlan pull down Menus include items with Submenus. For the most part, these Submenus tell you when a particular setting is on or off. However, as you get familiar with MaxiPlan you will learn they contain useful information and options.

If a Submenu is present, one of the Submenu Items must be chosen in order to activate the Menu Item. For example, the PRINT Menu Item on the PROJECT Menu has two items on its Submenu: Printer and File. One of these options must be selected in order to activate the Print Command.

Requesters

Requesters are message boxes used to convey information and to allow for user input such as the name of a Range. Each Requester has an OK button to either signify accepting a user entry or to indicate that the message has been read and noted. The CANCEL button or Close Gadget will remove the Requester from the display. Many Requesters can be likened to a Pop Up window. These Requesters also have scroll bars for seeing more of the file listings or other information.

Formulas Begin with "="

All Formulas begin with an equal sign. If a Formula is to be inserted into a Cell, you must first key in an equal sign (or click on the Equal Sign Formula Button). For example:
=A2+5

Defining a Formula in a Cell allows the value of the Cell to change if one of the variables in the Formula changes. Thus every time A2 is changed, and a recalculation is performed, the results of the Formula will change.

If you simply insert A2+5 in a Cell, this will add 5 to the value in Cell A2 and store it in the Cell where A2+5 is keyed in. However, since it is not a Formula, only the value is stored. Should A2 be changed, the Cell will not be updated.

After you have taken a short tour of MaxiPlan, you will become much more familiar with its conventions. Remember, MaxiPlan is your tool. Try out its features as you go through the manual to make them part of your MaxiPlan repertoire of analytical tactics.

Chapter 3

UP AND RUNNING IN TEN MINUTES

GETTING STARTED

In this chapter you will build a sample Worksheet. Once the Worksheet is designed, you will then ask yourself your first "What if?", that is what effects will you have on the Worksheet if you change a number or alter an assumption for the calculations.

We assume your knowledge of your Amiga is limited to turning on the computer, and for Amiga 1000 users inserting the Kick Start Disk, and then the Workbench Disk. Thus a user with any level of spreadsheet experience will be able to follow our example.

Now, turn on your computer as described in your Amiga Manual. Since you will later be asked to print your Worksheet, you may wish to turn on your printer at this time as well.

1. *Place your MaxiPlan Program Disk in the Internal Drive of the computer and execute a soft boot. (Control-Right Amiga Key-Left Amiga Key)*
2. *Double click on the MaxiPlan Program Disk Icon with the Select (left) mouse button*
3. *Double click on the MaxiPlan Program Drawer with the Select (left) mouse button*
4. *Double click on the MaxiPlan Program Icon with the Select (left) mouse button*

MaxiPlan is now being loaded, when this is completed you will see the Control Window. The Control Window displays the name and version of the program.

To create a blank Worksheet, follow the steps below.

5. *While holding down the right mouse button (called the Menu Button), move the Pointer across the top of Control Window. This will cause a Pull Down Menu to appear called the CONTROL Menu*
6. *Still holding down the right mouse button, move the Pointer down the Menu. As the Pointer moves down the Menu a contrasting colored stripe will highlight the various Menu Items. Select the Menu Item NEW WORKSHEET by stopping the highlight stripe over the words NEW WORKSHEET. Release the button, this will activate the Command NEW WORKSHEET.*

7. You will be presented with a blank Worksheet . Let's take a few minutes to explore the Worksheet's parts.

ACTIVE CELL, CELL CONTENTS DISPLAY,

CURSOR, AND FORMULA BUTTONS

MaxiPlan's Worksheet is comprised of a grid or matrix of Cells. The Cells are formed by the intersection of Rows and Columns. There are 512 vertical Columns in MaxiPlan lettered A to SR.

The Rows number 1 to 65,530 allowing a maximum Worksheet of over 30 million possible Cells depending on the size of available memory.

The Active Cell is the current Cell for inserting information into the Worksheet. You always know the Cell Address of the Active Cell by looking at the upper left-hand corner of the Worksheet window. Three types of information can be inserted into Cells:

- **Numeric Data**
- **Text such as a Label**
- **A Formula for performing calculations**

The Cell Contents Display at the top of the Window shows what is in a Cell. If the Cell is a Label, it will show the actual letters making up the Text of the Label. These same letters will also be on the Worksheet itself. If it contains numbers, the numbers will appear in the Cell Contents Display as well as on the Worksheet. While a Cell with a Formula will show the Formula in the Cell Contents Display and the result of the Formula or its Value in the body of the Worksheet.

The Cursor is the site in the Cell Contents Display where the entries are made into the Cell. To transfer the entry into the actual Worksheet, you have to accept the entry by pressing the RETURN Key on the computer. We will denote the RETURN Key in this manual by

Across the top of the Worksheet window is a series of graphic gadgets called Formula Buttons. These can be selected with the left mouse button to activate an element of a Formula such as the equals sign, a display of built-in Functions, or to actually insert numbers, decimals, and parentheses.

CREATING A WORKSHEET

When you opened a New Worksheet, the Active Cell will be Cell A1. At this Cell, type in the characters: **EXAMPLE <CR>**

This should move the Active Cell down to Cell A2. If you made a mistake while typing in the word EXAMPLE, point to the Cell with the Pointer; press the Select (left) mouse button. This will make the Cell A1 the Active Cell again.

To edit the Cell's contents, move the Pointer to the Cell Contents Display and click the Select or left mouse button. This will activate the Cursor in the Cell Contents Display. Then with either the Backspace Key or the Arrow Keys, move the Cursor in the Cell Contents Display to the error and retype the correct letters. Press the RETURN key to accept the changes.

MaxiPlan automatically inserts a quote mark in front of an entry with letters. Anything with letters is assumed to be a label. If you wish to treat a number as a label, you have to manually insert a quote mark in front of the number. This is especially true when you are entering a date such as '10-5-87 or '11/15/87.

The word EXAMPLE now appears in Cell A1.

MORE LABELS

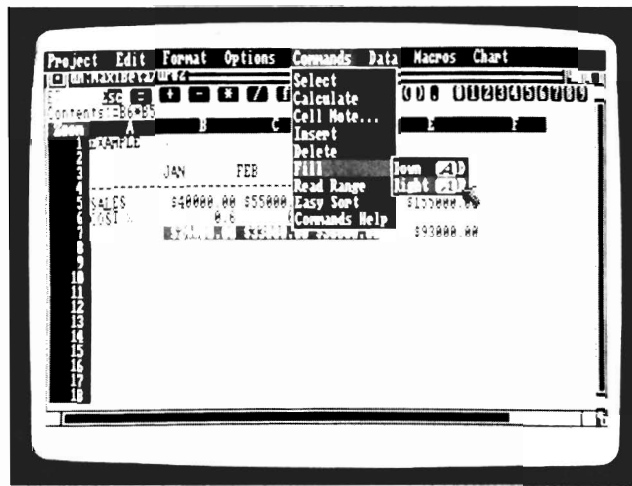
To fill in more labels on the Worksheet, press any appropriate combination of RETURN Keystrokes or Arrow Keys to move the Active Cell to the Cell Addresses listed below, or simply point to the Cell with the Pointer. At each particular Cell, key in the label indicated.

Note: the tab key will complete an entry in a Cell and move the Active Cell to the right in the same Row.

Cell Address	Label
B3	JAN <CR> , Point to C3
C3	FEB <CR> , Point to D3
D3	MAR <CR> , Point to E3
E3	1 ST QTR <CR>

DETAILS: APPEARANCE ENHANCERS

To help make the Worksheet look better, as well as clearly distinguish one type of information from another it is helpful to include detail lines. A quick way to enter such lines is by using the FILL Command as shown below.



1. *Select the Cell A4 with the Pointer as the Active Cell*
2. *Key in a series of dashes followed by a Return <CR>*
3. *Using the Up Arrow key, move back to Cell A4*
4. *Select the Range to Fill Right by holding the Select (left) mouse button, drag the Pointer to Cell E4. Release the button. This will highlight the Range (A4:E4).*
5. *Press F7, the Fill Right Command Function Key*

This will cause the contents of Cell A4 to be replicated over the highlighted Range. Thus the detail line is quickly put in place.

Another method for inserting a detail line is to highlight a Range of Cells containing data and then select the STYLE Menu Item and UNDERLINE Submenu Item under the FORMAT Menu.

NUMBERS AND FORMULAS

1. *With the Pointer, move the Active Cell to A5. Key in: SALES <CR>*
2. *With the Pointer, move the Active Cell to B5. Key in: 40000 <CR>*

Though this is a dollar amount, you must only key in the digits for the number. The formatting, that is adding commas, decimal points, and dollar signs will be added later by MaxiPlan.

3. *Fill in the remaining Sales figures as follows:*

Cell Address	Data
C5	55000 <CR>, Point to D5
D5	60000 <CR>, Point to E5

At E5 we wish to enter the total Sales for the three months. This can be done by using one of the built-in Functions. In this case we will use the SUM Function.

5. *Select E5, then click on the "=" Formula Button*

This alerts MaxiPlan to expect a Formula.

6. *Click on the F() Formula Button for built-in functions*

This will result in the display of a Requester listing over 70 built-in Functions. Using the Scroll Bars with the left mouse button (see the Amiga Manual), find the SUM Function.

7. *Once the SUM Function is in the Window, double click on the word SUM with the Select (left) mouse button. This will incorporate the SUM Function in the Formula in Cell E5.*

8. *Now move the Pointer to Cell B5, pressing the left (Select) mouse button, select the Range B5 to D5. Release the button. Press <CR>.*

You will see the results of the Formula, 155000, or the total of January through March Sales in Cell E5.

FORMATTING SALES CURRENCY

The raw data we entered does not look professional. It does not have currency symbols such as dollar signs, commas and decimal points. We can add such touches by formatting the Row.

1. *Starting in Cell B5, select or highlight the Range B5 to E5.*

2. *With the right or Menu mouse button, pull down the FORMAT Menu*

3. *Select the CURRENCY Menu Item. This will add a Dollar sign in front of each entry in the Row and two decimal points as trailers.*

4. *Pull Down the FORMAT Menu again and select the COMMAS Menu Item with the ON Submenu Item.*

Now Cell E5 has a series of ##### displayed. These indicate that the column width is too narrow to display the data.

5. Click on Cell E5. Pull Down the FORMAT Menu, select the WIDTH Menu Item and the SPECIFY Submenu Item.

This will bring up a Requester for entering in a new Column Width. Key in: 14 and click on the OK button with the left or Select mouse button.

ADDING MORE INFORMATION

- 1. In Cell A6 Key in: Cost % <CR>*
- 2. Point to Cell B6 and key in: .6 <CR>*
- 3. Click on Cell B6 and select or highlight the Range (B6:D6)*
- 4. Press the F7 Fill Right Function Key*
- 5. To create another Formula, click on Cell B7 and key in: =. Then click on Cell B6, click on the "*" Formula Button and then click on Cell B5. Press Return or click on the "=" Formula Button to accept the Formula. This will enter the Formula =B6*B5 in Cell B7.*

To replicate the Formula using the Fill command:

- 1. Click on Cell B7 and select the Range (B7:D7)*
- 2. Press the F7 Fill Right Function Key*

This will replicate the Formula into Cell B7 in Cells C7 and D7.

Note: the Formulas have been readjusted in Cells C7 and D7.

To finish off the Worksheet, we want to total the Cost of Sales.

- 1. Click on Cell E5.*
- 2. Press the F3, or Copy Function Key.*
- 3. With the Pointer, move the Active Cell to E7.*
- 4. Press the F4, or Paste Function Key.*

This will copy the Sum formula in Cell E5 into Cell E7. Notice the Formula references have automatically adjusted by MaxiPlan.

Now repeat the Currency formatting steps on the Range (B7:D7).

SAVING THE WORKSHEET

Now that you have created a simple Income Statement, you will want to Save your Worksheet to a disk. The Worksheet currently resides in the memory of the computer. If you turn the power off to the computer at this point, you will lose all of your data and calculations.

In order to Save the Worksheet:

- 1. Pull Down the PROJECT Menu with the right (Menu) mouse button*
- 2. Select the SAVE Menu Item.*

This will bring up a Requester for entering the File Name for the Worksheet.

- 3. In the File Requester, Key in: Sample Worksheet*
- 4. Click on the OK button to accept the name.*

This will save the Worksheet under the file name SAMPLE WORKSHEET. It is also possible to save a duplicate of the file under a different name with the SAVE AS Command Menu Item on the PROJECT Menu.

To close the Worksheet, click on the Close Gadget in the upper left-hand corner of the Worksheet window. This will return you to the CONTROL Window. To leave MaxiPlan, pull down the CONTROL Menu and select the QUIT Menu Item.

WHAT YOU HAVE LEARNED

At this point you have learned quite a bit of information about MaxiPlan Worksheets. You have learned about labels, keying in numbers, formatting data, creating formulas, replicating formulas and saving your Worksheet. Finally, you have learned to close the Worksheet and exit MaxiPlan.

You can stop now, or if you have a few more minutes, continue on and learn how to Load your Saved File, do a What If, pull in data from other Worksheets and print the Worksheet.

LOAD AN EXISTING WORKSHEET

If you have not closed SAMPLE WORKSHEET, do so now. Be sure to insert the Back Up copy of the Data/Utilities Disk in either the Internal Drive, or if you have one the external drive. Once you are in the Control Window, pull down the CONTROL Menu and select the Menu Item OPEN WORKSHEET with the Menu (right) mouse button.

This will display a Requester called the MaxiPlan Name Selector. Across the bottom are Drive Buttons. Click on either DF0 if the Data/Utilities Disk is in the Internal Drive or DF1 if it is in the External Drive.

Then click on the center of the Window to display the list of File Names. Find DIVISION 1. To Open this Worksheet, double Click on its name with the Select (left) mouse button. This is an expansion of the Worksheet we just created.

PERFORM A WHAT IF

The true power of MaxiPlan is its ability to quickly show results if any of your assumptions used to create the Worksheet are changed. Let's look at some examples of What Ifs.

1. What if March Sales increase to \$70,000?

Click on Cell D5 with the Select (left) mouse button and key in: 70000 < CR >

Note that Profit at Cell E7 has been changed to \$99,000.

2. What if the Cost percent changes to 50%?

Select Cell B5 and key in: .5 < CR >

Use the left mouse button to select or highlight the Range (B6:D6). Press F7, the Fill Right Function Key.

Now both the Cost of Goods and Profit are altered for each Month and the entire Quarter and the Worksheet now appears as follows.

	A	B	C	D	E	F
1	JAN	FEB	MAR	1 ST QTR		
2	SALES	\$40000.00	\$55000.00	\$70000.00	\$165000.00	
3	COST %	0.5	0.5	0.5	0.5	
4		\$20000.00	\$27500.00	\$35000.00	\$92500.00	
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						

LINKING WORKSHEETS

Often you create Worksheets for separate subunits. MaxiPlan allows you to quickly consolidate information from several Worksheets. On the Data/Utilities Disk are sample Worksheets. These can be found in the Worksheets Drawer on this disk. For this example, you will use two sample Worksheets: DIVISION 1 and DIVISION 2. Before you can access this Worksheet, you must insert the Data/Utilities Disk into the drive of your choice. Then we will combine data from one Worksheet with that of another. If the Data/Utilities Disk is inserted in the Internal Drive, it will be on drive DF0:. The external drive is called DF1: should you elect to use this drive.

Open a NEW WORKSHEET using the PROJECT Menu.

To pull data from the DIVISION 1 and DIVISION 2 Worksheets, you will use the REFER function. In order for the REFER function to work, it uses a PATH name to find the Worksheet and a Named Range for the Cell from which to pull the data. Both DIVISION 1 and DIVISION 2 have three named Cells: Balance, Expenses, and Income.

Continuing our example:

- select Cell C3
- click on the = Formula Button
- find the REFER function in the Function Requester window
- double click on the name REFER
- point to the REFER function argument in the Cell Contents Display
- key in the following including the single quote marks:

'Worksheets/division 1','income'

press Return

At each of the following Cells, the REFER function is used along with the associated arguments.

<u>Cell</u>	<u>Argument</u>
D3	'Worksheets/division 2','income'
C4	'Worksheets/division 1','expense'
D4	'Worksheets/division 2','expense'

After summing over the appropriate Ranges, the Worksheet will look as follows.

	A	B	C	D	E	F
1	Consolidated Quarterly Results - All Divisions					
2						
3	Income	\$24,556.00	\$56,252.00	\$80,000.00		
4	Expenses	\$15,325.00	\$23,235.00	\$38,560.00		
5						
6	Balance	\$9,231.00	\$33,017.00	\$42,240.00		
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						

To save the Worksheet, pull down the PROJECT Menu and select the SAVE Menu Item.

PRINT THE WORKSHEET

To print what you have created make certain that your printer is properly hooked up, turned on, Preferences under the Control Window properly set, and there is paper in the printer.

When printing the Worksheet, you may want to include certain information such as a title, page numbers, etc. In this example, you will specify that the date and time be printed.

1. Pull down the PROJECT Menu, and select the Menu Item PRINT SET UP with the Menu (right) mouse button.
2. Select the Submenu Item FILE NAME with the Menu (right) mouse button.
3. Pull down the PROJECT Menu. Select the Menu Item PRINT SET UP.
4. Select the Submenu Item: Date
5. Pull down the PROJECT Menu. Select the Menu Item PRINT SET UP.
6. Select the Submenu Item: Time

Now you are ready to Print the Worksheet

1. Select a single cell.

2. *Pull down the PROJECT Menu. Select the Menu Item PRINT, and the Sub-menu Item PRINTER.*

If the printer is turned on, you should now be printing a hard copy of your Worksheet.

Congratulations! You have now taken the first steps to learning how to improve your productivity with MaxiPlan.



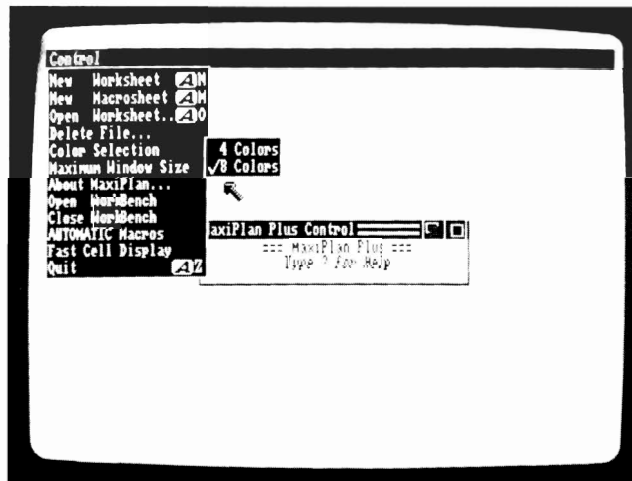
Chapter 4

ENTERING MaxiPlan: THE CONTROL WINDOW

Every MaxiPlan session begins and ends at the Control Window. Six major activities concerning external controls of Worksheets can be executed in the Control Window:

- Opening existing Worksheets or a New (blank) Worksheet
- Opening or Closing the Workbench
- Deleting Worksheet Files on Disk
- Setting Available Colors at 4 or 8
- Setting the Maximum number of rows displayed on a Worksheet Window
- Setting Fast Screen Refreshing with Fast Cell Display
- Quitting or Exiting MaxiPlan and returning to the Workbench

The Control Window: has one Menu available, the Control Menu. The following is a depiction of the Control Window and the Control Menu. Each Menu Item is listed in turn below along with a brief description.



New Worksheet:

This opens up a blank worksheet. This Menu Item can also be executed by pressing the Amiga Key and the letter "N".

New Macrosheet

(Only appears in MaxiPlan Plus): Used to access a New (blank) Macrosheet.

Open Worksheet:

This Menu Item is used to access an existing Worksheet file. When selected, it displays the Requester, MaxiPlan File Request, which lists MaxiPlan Drawers and Files.

Across the bottom of the Requester are buttons for selecting the appropriate disk drive. These buttons are important in case you wish to open up a file which is on a disk in a different drive than the one being used for the MaxiPlan Program Disk. To select a different disk drive, click on the Disk Drive button with the Select (left) mouse button. The new disk drive name will appear in the PATH prompt. MaxiPlan will default to the current drive if another is not selected.

To display the list of Drawers and Files, click on the center of the Requester. A Scroll Bar is available to see additional names. Drawer names and File names are displayed in different colors. To see the contents of a Drawer, double click on its name or click on the name once with the Select (left) mouse button and then click on the OK button to open the Drawer. You use the same action to open a File in the Drawer. If you want to return to the previous level of the directories, click on the phrase Previous Directory at the top of the Window.

Open Worksheet can also be executed by pressing the right Amiga Key and the letter "O".

More experienced users can enter the Pathname and File Name in the PATH prompt at the bottom of the Requester Window to speed up the process of opening up a Worksheet file.

Delete File:

You may wish to use this command to either free up disk space, or to remove a file you no longer need. Accessing this Menu Item displays the same MaxiPlan File Request Pop Up Window that appears when opening a file. You must first select the drive, and then click on the center of the window to find the name of the file to be deleted. After double clicking on a File Name, MaxiPlan presents a Requester asking you to again affirm this is the file you wish to delete. Click on Yes to affirm, and No to cancel the deletion process.

Color Selection:

MaxiPlan operates under one of two possible color schemes: Standard Mode or 4 colors and Enhanced Mode or 8 colors. The Color Selection Menu Item has an associated Submenu for selecting either 4 colors or 8 colors. Under 4 colors, MaxiPlan will

ENTERING MaxiPlan: THE CONTROL WINDOW

use less memory and therefore you can save a larger Worksheet. Using 8 colors uses memory, but broadens the possible application of color for graphic presentation of Worksheet analysis.

Maximum Window Size:

Under the Normal Mode for viewing the Worksheet, it is possible to display the Worksheet with either 19 rows or 44 rows in the Worksheet window. The Maximum Window Size Menu Item has a Submenu for selecting either 19 rows or 44 rows. While a larger Window size allows you to see more data, it also uses more memory.

About MaxiPlan:

This is a window listing the program copyrights. Intuitive Technologies holds the copy right to the program code for both MaxiPlan 500 and MaxiPlan Plus. Credit is also given to Michael G. Lehman and Scott D. Saunders, the programmers responsible for the creation of MaxiPlan 500 and MaxiPlan Plus.

Open Workbench:

This Menu Item opens the Workbench Window without having to Exit MaxiPlan. Access to the Workbench allows you to open up other programs on the Workbench and makes available system utilities such as Initializing Disks.

Close Workbench:

This Menu Item closes the Workbench Window without having to Exit MaxiPlan.

Automatic Macros:

(Only in MaxiPlan Plus): This Menu Item has two Submenu Items for toggling On or Off this capability. When Automatic Macros is On, when a Macrosheet with a Macro named "Automatic" is opened, that Macro will immediately be executed.

Fast Cell Display:

This Menu Item has two Submenu Items for toggling On or Off this capability. Fast Cell Display speeds up the time it takes to refresh the screen whenever a Cell is altered. It does use additional memory which may effect the maximum size of a Worksheet which can be saved.

Quit:

This is the Menu Item that must be selected to Exit MaxiPlan. Before you can access Quit, all open Worksheets must be closed. To completely exit the MaxiPlan program, you must select the Quit Menu Item in the Control Menu. This command can also be executed by pressing the Amiga Key and the letter "Z".

ENTERING MaxiPlan: THE CONTROL WINDOW

The CONTROL Menu dictates parameters set for all Worksheets opened during the MaxiPlan session on any drive. These parameters are saved and will dictate your activities in your next MaxiPlan session until you alter these parameters. To alter any parameter while using a MaxiPlan Worksheet, simply Save and Close the Worksheet to return to the Control Window and pull down the Control Menu. You will then be able to alter the global parameters for Worksheets.

Some of the parameters can be altered from the Worksheet itself. See the section of this manual entitled "THE MaxiPlan WORKSHEET WINDOW" for a description of which parameters can be altered from within a MaxiPlan Worksheet.

Chapter 5

WORKSHEET WINDOW

The layout of the Worksheet Window is depicted below. It will be helpful to familiarize yourself with the layout and to learn the purpose of each element of the screen. When you load the MaxiPlan program, you first encountered the Control Window. This is the point of entry and exit from MaxiPlan. This window is explained in further depth in the chapter entitled "ENTERING MaxiPlan: THE CONTROL WINDOW". To view a blank Worksheet, pull down the Control Menu and select the New Worksheet Menu Item. You will then be presented with a blank Worksheet as shown below.

The screenshot shows a window titled "30-Jun-87 10:06 AM Plus/x.8 Display/Total: 350048 /1103432". Below the title bar is a menu bar with options: "File", "Edit", "Format", "Window", "Help", and "MaxiPlan". The main area contains a table with the following data:

Check#	Date	Amount	Deposits	Balance
1	3/4	101.00	500.00	101.00
2	3/4	101.00		101.00
3	3/4	101.00		101.00
4	3/4	101.00		101.00
5	3/7	56.17		101.00
6				101.00
7				101.00
8				101.00
9				101.00
10				101.00
11				101.00
12				101.00
13				101.00
14				101.00
15				101.00
16				101.00
17				101.00
18				101.00

Worksheet Info, etc.

Cells formed by

Scroll Bars

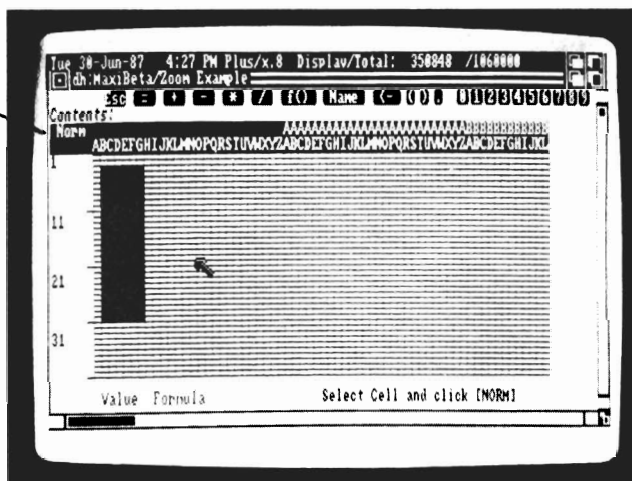
The MaxiPlan Worksheet is divided into three broad areas:

- Worksheet Info, Gadgets for Switching Windows and Closing a Window, Formula Buttons, Active File Name, and Cell Contents Display at the upper portion of the screen
- The body of Cells formed by Rows and Columns in the center of the screen
- A Vertical Scroll Bar and a Horizontal Scroll Bar at the bottom of the screen.

Norm vs Zoom Modes

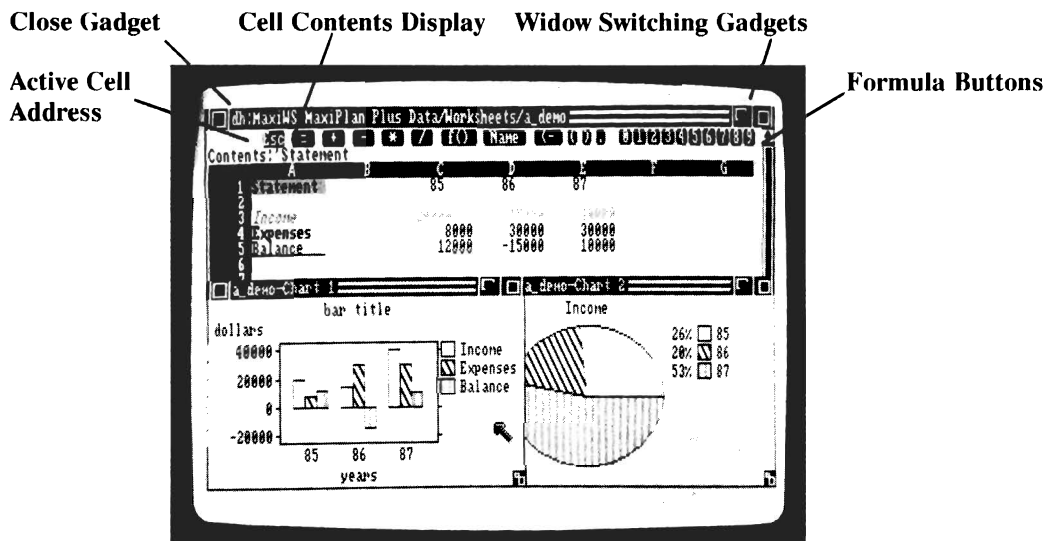
When a Worksheet is opened, it appears in the NORM Mode. The NORM Mode displays 7 Columns and 19 Rows. It is also possible to display your Worksheet in ZOOM Mode, or from a bird's eye view to get the big picture in which you can see more cells at once. In the ZOOM Mode MaxiPlan displays 64 Columns and 40 Rows. However, you can not see the entries in the Cells since each Cell is very small. The contents of a particular Cell can be seen by selecting the Cell and viewing the Cell's contents in the Cell Contents Display at the top of the window. To see the "Zoom" mode, click on the word Zoom in the upper left corner of the Worksheet with the Select (left) mouse button.

Select to
Return to
Norm Mode



Above is a depiction of the Worksheet in Zoom mode. Note that the Worksheet window in Zoom mode different from that of the Norm mode. The actual entries in the Cells are not displayed, and the classification of the Cells in the defined Worksheet is color coded for a quick visuals representation of the layout of the Worksheet.

Below is a Close up of the top of the Worksheet. Each part of the Worksheet illustrated is discussed.



Worksheet Info

Across the top of the Worksheet is displayed information concerning the Worksheet. The current day of the week, date and time from the Amiga System Clock are displayed. To the right is the Version of MaxiPlan you are using, and a Memory Meter stating the amount of display memory as well as the amount memory available on the Amiga.

Window Switching Gadgets

In the upper right hand corner of the window are located the Window Switching Gadgets for changing the display order of the open Windows. Clicking on the left Gadget, or Front Gadget, moves that particular Window to the Front of the display. The right Gadget, or Back Gadget, is used to move a Window to the back of the display. See your Amiga manual.

Close Gadget

In the extreme upper left hand corner of the MaxiPlan Window is the Close Gadget. Clicking on this Gadget closes the Window.

Active File Name

Next to the Close Gadget is the Active File Name. This includes the File Pathname and the File Name for the MaxiPlan Worksheet. The Path Name includes the Drive and/or

Drawer for the Worksheet. It is the location where MaxiPlan looks to find the Open Worksheet File.

Active Cell Address

Below the File Name is the Cell Address of the Active Cell. A Cell Address is comprised of a Letter or Letters to designate the Column where followed by a Row number. Rows and Columns will be explained in greater depth below. The Active Cell is where MaxiPlan is currently entering data, text, or a formula.

Formula Buttons

To the right of the Active Cell Address is a series of Buttons. These Buttons are used for entering Formulas into a Cell via the mouse. Formulas will be discussed at length in the chapter entitled "Creating Formulas". To use one of the Formula Buttons, simply click on the Button with the Select (left) mouse button. From left to right the Formula Buttons are:

Escape Button: ESC

Same as the Escape Key on the Keyboard. This erases the contents in a Cell, stops an action such as printing, or stops the execution of a Macro.

5 Buttons for arithmetic operators: = + - * /

Clicking on an arithmetic operator button incorporates the operator into the Formula.

Function Selection Window Button: F()

Clicking on this button causes the display of a Requester listing all of the built-in Functions. The Function Selection Window has a Scroll Bar for fast access to any Function.

Name Selection Window Button: Name

Clicking on this button results in the display of a Requester listing all of the Named Ranges for the Worksheet. A Scroll Bar is available in the Name Selection Window.

Destructive Backspace Button: -

This functions the same as the Backspace Key on the Keyboard. Clicking on this button moves the Cursor backwards and destroys the entry in the Cell Contents Display for the Active Cell character by character.

Open Parenthesis and Closed Parenthesis Buttons: ()

Clicking on the next two buttons inserts parenthesis into a Formula or Cell.

Decimal Button: .

Clicking on this button incorporates a decimal into a Formula or Cell.

Digits Buttons: 0 1 2 3 4 5 6 7 8 9

Clicking on each of the ten digit buttons places that digit into a Formula or as data in a Cell.

Cell Contents Display

Underneath the Formula buttons is an area which displays the contents of the Active Cell. If the Active Cell contains a Formula, the Formula will be displayed in the Cell Contents Display, while its results are shown in the Active Cell itself. Cells which merely contain data will show that data in both the Cell Contents Display as well as the Active Cell on the Worksheet. However, the Cell Contents Display will also include a designation for Format alignment of the Data. Similarly, Cells containing Text or Labels will show the Text both in the Active Cell and the Cell Contents Display. An alignment designation will also occur in the Cell Contents Display for text type data.

Worksheet Cells

The center portion of the screen is taken up by the actual Cells of the Worksheet. Every Cell is formed by the intersection of a Column and a Row. A Column is a vertical collection of Cells, while a Row is a horizontal collection. Columns are designated by Letters. The Letter for each Column is shown above the Column. Rows are designated by Numbers which are located to the left of each Row.

Scroll Bars

Along the right side of the Window is the Vertical Scroll Bar. At either end of the Scroll Bar are the Scroll Arrows. Each Arrow is used to move the displayed Cells up or down one Row at a click on the Arrow. The direction of the Arrow indicates whether the Rows are moving Up or Down.

To automate the process, click on the Scroll Box with the Select Mouse Button (left button) and move the Scroll Box in the appropriate direction. The relative size of the Scroll Box to the Scroll Bar equates to the ratio of number of Rows displayed to the number of Rows in the Worksheet. Thus a worksheet that only has 19 Rows will have a Scroll Box

equal to the entire Scroll Bar. While a Worksheet with 36 Rows will have a Scroll Box half the size of the Scroll Bar.

MaxiPlan allows you to easily move about within the Rows or Columns which have been defined in the Worksheet. The area accessed by the Scroll Bars is defined to be the defined portion of the Worksheet plus and extra half screen in each direction. Empty Rows and Columns beyond these boundaries can only be accessed with the down and right Scroll Arrow, the Zoom mode or the Select Cell Location command.

At the bottom of the Window is the Horizontal Scroll Bar which treats the display of the Columns of the Worksheet in the same manner that the Vertical Scroll Bar effects the display of the Rows of the Worksheet.

Sizing Gadget

On the very bottom right of the Window is the Sizing Gadget. This Gadget can shrink or expand the size of the Window displaying the Worksheet. Making the top Worksheet smaller allows you to see other Open Worksheets under the top Worksheet.

For more information about working with Amiga Windows, see your Amiga manual.

Chapter 6

WHERE TO GET HELP

MaxiPlan was designed to be as self-evident as possible. However, when you need help there are several sources available:

- On line Help Menus
- On Line HowTo Files
- On Line Manual Update Files
- Tutorial and Reference Guide
- Oxxi Technical Support

Each help source is free to registered owners of MaxiPlan 500 and MaxiPlan Plus. Call in Tech Support is intended to not only help with technical problems, but to also get feedback on desirable improvements and new applications for MaxiPlan. Don't hesitate to call for assistance, or to suggest a feature you would like implemented in later versions of MaxiPlan.

On-Line Help Menus

Associated with each Menu is a Help Menu Item. To find out more about a particular Menu, click on the Help Menu Item. A Requester Window will appear at the bottom of the screen displaying Help Text. Each Menu Item will be listed along with a brief explanation of its application. The Requester typically displays up to 10 lines of Help Text at a time. To see more Help Text, either use the Scroll Bar in the Requester Help Text Window or move the Help Text Window higher up on the screen and expand the size of the window with the sizing gadget.

On Line HowTo Files

On the MaxiPlan Program Disk Window or the MaxiPlan Utilities /Data Disk are displayed two Drawers which list information about MaxiPlan: Manual Update Drawer and HowTo Drawer. The HowTo Drawer has the files:

- Setup_A_Database
- Search_A_Database

•Sort_A_Database

It is possible additional files may have been added subsequent to the printing of this manual. Open the HowTo File Drawer to see the latest files by Selecting the HowTo File Drawer Icon. Each file will be designated by an Icon. Double click on one of the file Icons to read the contents of the file.

On Line Manual Update Files

Another On Line supplement to the Tutorial and Reference Guide is the Manual Update Drawer. Similar to the HowTo Drawer, it contains files with updating information about MaxiPlan.

To read any file in the Manual Update Drawer, simply double click on its Icon.

Tutorial and Reference Guide Manual

The Tutorial section of this manual is intended to offer instructions on how to use MaxiPlan along with associated examples. Related topics are grouped such as usage of formulas and functions, editing actions, etc.

A capsule summary of MaxiPlan for the experienced spreadsheet user appears in the section of the manual entitled "ADVANCED SAMPLE WORKSHEET". It offers the flavor of the program but is not intended to substitute for the remainder of the Tutorial.

Less experienced spreadsheet users should begin with "WORKSHEET BASICS", this gives some background to the analytical applications of spreadsheets. Next the novice spreadsheet user should turn to "GETTING ACQUAINTED: MaxiPlan's HABITS" to first learn MaxiPlan's conventions. They then should move on to the sections of this manual devoted to describing the Control Window and the Worksheet Window entitled respectively "ENTERING MaxiPlan: THE CONTROL WINDOW" and "THE WORKSHEET WINDOW". Then they should turn to the core of the Tutorial, the first eleven Lessons to learn the details of MaxiPlan's capabilities. After learning the basics, they will be ready to attempt to duplicate the actions in the section "ADVANCED SAMPLE WORKSHEET".

In the Reference Guide section of the manual are the detailed specifics of each command and additional insight on application of MaxiPlan features. A glossary of the MaxiPlan Built-in Functions is included as well.

Oxxi Technical Support

Technical Support accepts calls between the hours of 10 am and 4 pm, Pacific Time at (714) 999-6710. To take full advantage of Technical Support it is best to carefully document the problem before calling. Often solving a technical problem involves eliminating

sources of errors. The more the problem is defined, the faster Technical Support will be able to arrive at a solution.

When calling Technical Support you should be prepared with the following information:

- **Name of Product**
- **Version Number**
- **Serial Number**
- **Operating System and Version**
- **Method to Duplicate the Problem**

Remember when having a problem, you may have inadvertently used the wrong command or deviated from a MaxiPlan convention. It is best to first back out of a situation by pressing the Escape Key if possible, then try to recreate the error and document what occurs when. If you are able to reproduce the problem, then call Technical Support with your clearly defined problem.



Chapter 7

WORKSHEET BASICS

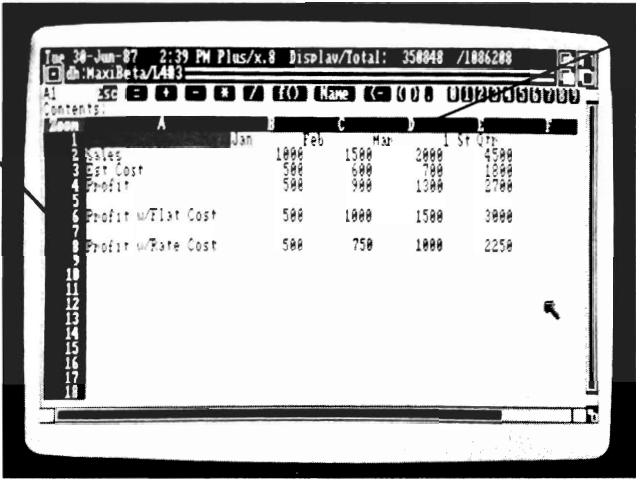
Spreadsheet computer software programs derive their name from the old fashioned manually generated ledgers accountants created on wide pads of paper. Typically these ledgers organized numeric data into Rows and Columns with totals in each Row as well as each Column. An example of a simple ledger is shown below.

Similarly, computer spreadsheet programs organize data into Rows and Columns. In MaxiPlan, the Columns are designated by letters while the Rows are designated by numbers. The intersection of a Row and Column is a Cell.

Cells are the basic building blocks of a MaxiPlan Worksheet. A particular Cell is denoted by its Cell Address, which is the combination of the letter of the Column and the number of the Row that the Cell occupies. The Cell depicted below has the Cell Address: C4.

Column Letters

Row Numbers



	Jan	Feb	Mar	Apr	May
1 Sales	1000	1500	2000	2500	3000
2 Cost	500	800	1000	1200	1500
3 Profit	500	700	1000	1300	1500
4 Profit w/Flat Cost	500	1000	1500	2000	2500
5 Profit w/Rate Cost	500	750	1000	1250	1500

The basic method spreadsheets use to analyze data is to:

- format and input data
- create Formulas to perform calculations
- output the results

Each step is discussed in turn below.

Formatting the Worksheet

The data organized on Worksheets is entered into the Cells. Each Cell is formatted to accommodate the type data entered into it. For example, if it is currency the data can be displayed with a dollar sign and cents. For other types of data it may be appropriate to only show whole numbers, or to express the data as a percent.

It is also possible to vary the width of the Cell. Since the Cells are in Columns, the width of the entire Column of numbers is usually determined by the Cell with the greatest number of digits required. Typically, if the Column is not wide enough for a particular Cell, MaxiPlan will display ##### in the Cell. When the width of the Column is sufficiently wide, the ##### disappear and are replaced by the value in the Cell.

Another formatting variable is adding or deleting Rows and Columns. Inserting a blank Row to separate one type of data from another may help organize the layout of the spreadsheet. While removing an unnecessary Row or Column may neaten up the appearance of a Worksheet.

Performing Calculations

Most analysis conducted with a spreadsheet program is on numeric type data. The analysis of numeric data involves performing calculations on the numeric data entered in the Cells. MaxiPlan uses Formulas to conduct the calculations.

MaxiPlan Formulas are statements of equivalence like regular mathematical formulas. One side of the equal sign is called the formula while the other side is called the value. Values in common terms are known as "the answer to the formula".

When creating a MaxiPlan formula, the statement to define the formula begins with an equal sign. This alerts MaxiPlan to perform some sort of calculation.

Formulas are entered into Cells, just as data such as numbers and text is entered. Just like regular formulas, MaxiPlan uses variables and constants. The variables of a MaxiPlan formula are typically either another Cell or a grouping of Cells known as a Range. When a formula uses another Cell, it refers to that Cell by its Cell Address or its Name.

When actually performing the calculation, MaxiPlan takes the contents of the Cell referred to and either adds it to something, multiplies it by something, or whatever action is dictated by the operators of the Formula.

MaxiPlan has two types of operators: arithmetic and logical. These are explained at greater length in the section of the manual entitled "Creating Formulas". The arithmetic operators available are denoted by the following symbols:

Operator	Action
+	Add
-	Subtract
*	Multiply
/	Divide
^	Exponential

For example, when MaxiPlan inserts a plus sign between two Cell Addresses, it will add the Cell Contents of one Cell to the Cell Contents of the other Cell. If the contents of the Cells were simply numbers, then the numbers would be added. However, if the contents of the cells were Formulas, then the Formulas as well as their values would be added.

The following is an example of how arithmetic operators are used.

Cell	Contents	Value
B3	500	500
B4	700	700
B5	= B3*2	1000
B6	= B4 + 100	800

Then:

Cell	Formula	Value
C3	= B3 + B4	1200
C4	= B5 + B6	1800

Logical operators create logical statements which solve for a true or false condition. They are used to choose between two alternative courses of action. To choose between more than two actions, you must create a series of logical statements. Logical operators include:

Operator	Action
>	Greater than
<	Less than
=	Equal to
=	Greater than and equal to
=	Less than and equal to
< >	Not equal to

Using the same sample data above. An example of use of Logical Operators is given below.

	Formula	Value
D3	= B3 > B4	0 = False
D4	= B4 < B5	1 = True
D5	= B6 = B5	0 = False

Using Built-In Functions

MaxiPlan has a series of pre-defined mini Formulas called Functions. A Function can be used either alone as a Formula or it can be incorporated as part of a more complex Formula.

Functions are comprised of two parts:

- **Function Name**
- **Function Argument**

The Name identifies the function while the Argument is the data upon which the function acts.

Arguments vary by the type of function. Some require a Range of Cells, some an interest factor, and some require no argument at all.

A commonly used built-in Function is the SUM Function. The SUM Function adds up the items in its argument. These items may be actual numbers, or the Argument may be a Range of Cells containing Numeric Data. Thus to add up the cells in the range B3 to B7 with the SUM Function we would use the following formula:

=SUM(B3:B6)

You will note the convention for defining a Range is to separate the beginning cell from the ending cell with a colon.

Using the same definitions for cells B3,B4,B5 and B6 the value of the above formula using the SUM function is: 3000.

Presenting the Results of the Analysis

Once all of the data has been entered into properly formatted Cells and the calculations defined by Formulas, you may want to display the results either on the screen, print them as hard copy, or output them as a Disk File. It is also possible to convert the data into a Chart such as a bar graph, that can be outputted either on the screen, Disk File, or printed as hard copy. MaxiPlan Charts can be dynamically linked to your data so you

can see the immediate effects of changes in data or Formulas on the Charts. Each scenario can be printed for later comparison. Finally, Charts can be exported to paint programs as an IFF File for further graphic enhancement. The lessons "PRINTING AND DISK FILE OUTPUT" and "CHARTS: VISUAL DISPLAY OF DATA" of this manual go into greater depth on these topics.

Chapter 8

LESSON ONE: OPENING, SAVING, CLOSING AND DELETING WORKSHEETS

Before beginning any MaxiPlan session you must enter MaxiPlan and then open a Worksheet File. Once you have either edited an existing Worksheet or created a new Worksheet you will want to save your work for later retrieval. Finally, before exiting MaxiPlan all open Worksheets must be closed.

In this Lesson you will learn:

- How to Enter MaxiPlan
- How to Open an existing Worksheet
- How to Open a New Worksheet
- How to Save a Worksheet
- How to Save a Duplicate Worksheet
- How to Delete a Worksheet
- How to Close a Worksheet
- How to Exit MaxiPlan

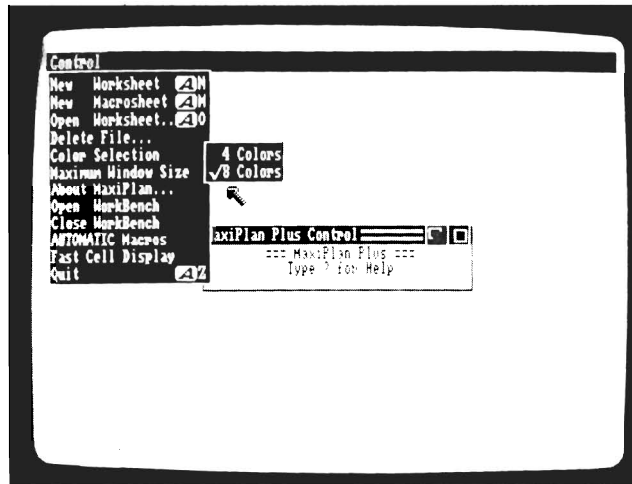
Entering MaxiPlan

MaxiPlan is a bootable disk, that is it comes with version 1.2 Kickstart installed. When you insert the MaxiPlan program disk in a drive, it will boot up and you will be presented

with an Icon of the Program Disk on the Workbench window. After turning on the machine, and installing the Workbench, insert the Program Disk into any drive.

To enter MaxiPlan you must:

Select the Program Disk by clicking on the Icon with the Select (left) mouse button. This will then display the Control window shown below.



This will bring you to the Control Window, where the Control Menu will allow you to either open an existing MaxiPlan Worksheet or bring up a new MaxiPlan Worksheet.

Open an Existing Worksheet

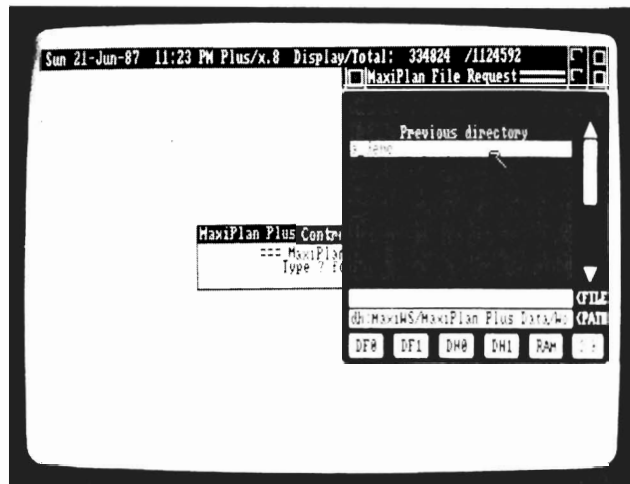
Once you are in the Control Window you can perform many tasks. For a full explanation of the Control Window, see the Chapter entitled "ENTERING MaxiPlan: THE CONTROL WINDOW".

To work with an existing Worksheet,

pull down the CONTROL Menu with the Menu (right) mouse button

select the OPEN WORKSHEET Menu Item with the Menu (right) mouse button.

You will then be presented with the MaxiPlan File Requester, a Pop Up window which lists the Directories (or Drawers) and associated Worksheet Files currently residing on any Amiga drive. The screen will now appear as shown below.



Before opening a Worksheet File, you must first locate the File. The MaxiPlan File Requester allows you to easily see the Files on any Drive. A series of Drive Buttons available across the bottom of the screen designate each of the possible drives. Respectively they are:

DF0: the internal drive
DF1: an external drive
DH0: a hard disk
DH1: a second hard disk
RAM: RAM disk

To select a particular Drive, click on the drive button with the Select (left) mouse button.

After you have selected a Drive, to see the directories and files on that drive, again with the Select (left) mouse button click on the center of the File Requester window. A list of Directories and Files is then presented. Directories and Files can be distinguished by color.

To see the any Files in a Directory (or Drawer) double click on the Directory Name with the Select (left) mouse button. This will then shift you to a list of Files in that particular directory. To get back to the previous window, click on the phrase "Previous Directory".

Once you have found the desired Worksheet File, to open the you again use the double click technique with the Select (left) mouse button.

It is possible to open up to three Worksheets simultaneously. To open another Worksheet, you use the PROJECT Menu of the Worksheet window and the OPEN WORKSHEET Menu Item in the same manner as the described above.

The OPEN WORKSHEET command can also be accessed by depressing the right Amiga Key with the letter O.

Create a New Worksheet

When you need a blank Worksheet window for creating a new Worksheet, you will use the NEW WORKSHEET Menu Item. This Menu Item is available both on the CONTROL Menu of the Control window and the PROJECT Menu of the Worksheet window.

The steps to create a New Worksheet are:

- **pull down the CONTROL Menu with the Menu (right) mouse button**
- **select the NEW WORKSHEET Menu Item with the Menu (right) mouse button.**

This will immediately bring up a blank Worksheet for inserting data, labels, and formulas.

Just as another existing Worksheet can be opened from within any MaxiPlan Worksheet, it is possible to open another blank or New Worksheet. The PROJECT Menu lists the NEW WORKSHEET Menu Item which can be accessed to bring up a fresh blank Worksheet. In addition, the NEW WORKSHEET command is available by depressing the right Amiga Key with the letter N.

Save the Worksheet

Once you are satisfied with the Worksheet, you will want to preserve it by saving it to the disk. The SAVE Menu Item on the PROJECT Menu will accomplish this task.

To Save a Worksheet for the first time:

- **pull down the PROJECT Menu with the Menu (right) mouse key**
- **select the SAVE Menu Item with the Menu (right) mouse button**

You will be presented with a MaxiPlan File Requester where you will key in the name you have chosen for the File. It is best to choose a name which quickly identifies the contents of the Worksheet. You must also specify the PATH for the File. MaxiPlan will automatically insert the PATH where the you started, typically where the MaxiPlan program resides. However, you have the option to specify your preferred PATH.

Unless you indicate differently, the File will be saved to the active drive. The active drive name should be visible in the PATH display at the bottom of the Requester. If you wish to save it to a different drive, you can either key in the drive name or click on the ap-

appropriate Drive Button with the Select (left) mouse button. The new drive name will then be in the PATH display at the bottom of the screen.

You can also designate a specific Directory or Drawer for the File. Simply key in the Directory name in the PATH display. The Directory or Drawer should be separated from the Drive by a colon (:).

After you have decided the PATH, you should key in the File name. The actual File Name should be keyed in the FILE display above the PATH display. To accept the File Name, click on the OK Button next to the Drive Buttons with the Select mouse button.

This name will be added to the list of other MaxiPlan files and will be displayed in the MaxiPlan File Requester for that directory. See Introduction to Amiga for more details about directories and PATH names.

If the Worksheet has been saved before, you will be returned to the Worksheet after a brief moment as the machine saves it to the disk.

SAVE is also available by depressing the right Amiga Key with the letter S.

Create Duplicate Worksheets

It is sometimes handy to have a duplicate of a Worksheet so one copy can be further manipulated while another remains fixed. To create a duplicate Worksheet you will want to save it to the disk under a different name. This is accomplished with the SAVE AS command.

The SAVE AS command is available on the PROJECT Menu. When invoked, you will be presented with the MaxiPlan File Requester and will have to go through the same steps described above for the initial save of a Worksheet File. To SAVE AS a new name

pull down the PROJECT Menu with the Menu (right) mouse button
select the SAVE AS Menu Item with the Menu (right) mouse button

You can then specify a different PATH if you wish and the new name for the Worksheet. After you have keyed in the PATH and the File Name, you will now have a duplicate Worksheet for manipulating or editing.

Delete a Worksheet

To delete a previously saved Worksheet, you must access the MaxiPlan File Requester with the DELETE FILE command. This command is available on both the CONTROL Menu and the PROJECT Menu. From either the Menu, the DELETE FILE command operates in the same fashion.

To delete a file from within a Worksheet

- pull down the **PROJECT Menu** with the **Menu (right) mouse button**
- select the **DELETE FILE Menu Item** with the **Menu (right) mouse button**

This will display the MaxiPlan File Requester. At the top of the Requester Windows is the message: Select File to Delete. You must first find the File by selecting the Drive where the File resides just as you do when using the Open Worksheet Menu Item.

Once you have found the File Name to be deleted,

double click on the File Name with the Select (left) mouse button

MaxiPlan will display a Requester for you to confirm that you wish to delete the file. The File Name and two buttons are available for inputting your decision.

click on the DELETE IT button with the Select (left) mouse button

This will delete the file.

Clicking on the SAVE IT button in the same manner will save the file, and abort the deletion process.

Close a Worksheet

A Worksheet can be closed via three methods:

- clicking on the **Close Gadget** in the upper left-hand corner of the window with the **Select (left) mouse button**
- pulling down the **PROJECT Menu** and selecting the **CLOSE WORKSHEET Menu Item** with the **Menu (right) mouse button**
- pressing the right Amiga Key with the letter **W**

If data has been entered which has not been saved to the disk, MaxiPlan will display a Requester asking you to Save Changes? Three buttons are available to respond to this request: YES, NO, CANCEL.

- Responding YES will save the Worksheet file to the disk with changes.
- Responding NO will save the Worksheet file to the disk without changes.
- Responding CANCEL will abort the closing process.

Exit MaxiPlan

Before you can exit MaxiPlan, every Open Worksheet must be closed. If you attempt to exit before closing a Worksheet, MaxiPlan will not execute the exit. After every Worksheet is closed, you will be returned to the Control window.

Once you are in the Control Window

- pull down the CONTROL Menu with the Menu (right) mouse button
- select the QUIT Menu Item with the Menu (right) mouse button

At this point you will be returned to the Workbench window where you can either turn off the computer or open another program.

Chapter 9

LESSON TWO: MANIPULATING THE WORKSHEET

Data, text, or formulas can be moved from one part of the Worksheet to another, replicated across a Range of Cells, or deleted from any Cell or Range. This manipulation of data, text, and formulas allows you to quickly build your Worksheets rather than keying in each and every Cell of the Worksheet by hand.

In this Lesson you will learn to:

- **Insert Rows and Columns**
- **Delete Rows and Columns**
- **Copy Data and Formulas**
- **Cut Data and Formulas**
- **Paste Data and Formulas**
- **Clear Data and Formulas**
- **Fill in Data and Formulas**

Making Room: Inserting Rows and Columns

Often it is desirable to move data, text, or formulas to a location on the Worksheet that is imbedded in the midst of other data. To make room for the new information you will want to either insert blank Rows or blank Columns.

To insert a Row:

move the Active Cell to any Cell in the Row below where you want to insert a blank Row with the Select (left) mouse button. In the above Worksheet, Cell C6 is selected, thus a blank Row will be inserted at Row 6.

- pull down the COMMANDS Menu, and select the INSERT Menu Item with the Menu (right) mouse button

- select the ROW Submenu Item

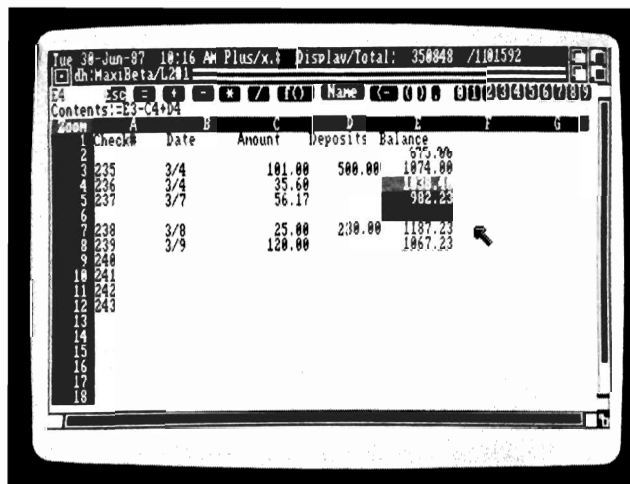
Now the Worksheet has a blank at Row 6.

To insert multiple Rows:

move the Active Cell to the Row below where you want the set of new blank Rows to be inserted

click on a Cell in the Row and drag downward the number of Rows that you want to insert. This will highlight a Range of Cells in a Column.

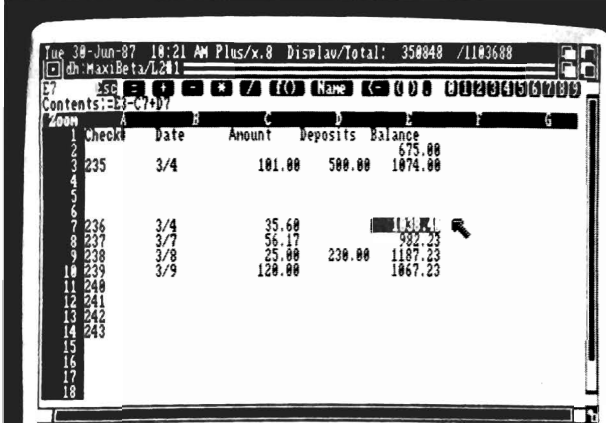
In the Worksheet below, the Range (E4:E6) has been selected.



- pull down the COMMANDS Menu, and select the INSERT Menu Item

•select the ROW Submenu Item

Now the Worksheet has blank Rows at Row 4 to Row 6.



	A	B	C	D	E	F	G
1	check	Date	Amount	Deposits	Balance		
2					675.00		
3	235	3/4	101.00	500.00	1074.00		
4							
5							
6							
7	236	3/4	35.60		1109.60		
8	237	3/7	56.17		1053.43		
9	238	3/8	25.00	230.00	1187.23		
10	239	3/9	120.00		1067.23		
11	240						
12	241						
13	242						
14	243						
15							
16							
17							
18							

To insert a Column:

move the Active Cell to any Cell in the Column just to the right of where you want to insert a blank Column by clicking on any Cell in the Column

pull down the COMMANDS Menu, and select the INSERT Menu Item

select the COLUMN Submenu Item

To insert multiple Columns:

move the Active Cell to any Cell in the Column just to the right of where the new blank Columns are to be inserted

click on a Cell in the Column and drag to the right creating a highlighted Range of Cells in the Row

pull down the COMMANDS Menu, and select the INSERT Menu Item

select the COLUMN Submenu Item

Condensing: Deleting Rows and Columns

Rows and Columns can be removed, or Deleted, in a manner similar to inserting Rows or Columns. The DELETE Menu Item under the COMMANDS Menu can remove either one Row or Column as well as a Range of Rows and Columns.

When a Row or Column is deleted, any Relative Cell references in Formulas will be maintained. You must check your Formulas to make certain they still refer to the correct Cell to get the proper results.

Similarly, when a Row or Column containing Absolute Cell references is removed, any Formulas using the particular Cells will now result in ERRORS. Thus Rows or Columns must be deleted with caution.

To Delete a Row

select a Cell in the Row to be deleted with the Select (left) mouse button

pull down the COMMANDS Menu and select the DELETE Menu Item with the Menu (right) mouse button

select the ROW Submenu Item

To Delete Multiple Rows

select a Cell in the first Row to be deleted and drag downward the number of Rows to be deleted. This will create a highlighted Range of Cells in a Column

pull down the COMMANDS Menu and select the DELETE Menu Item with the Menu (right) mouse button

select the ROW Submenu Item

To Delete a Column

select a Cell in the Column to be deleted with the Select (left) mouse button

pull down the COMMANDS Menu and select the DELETE Menu Item with the Menu (right) mouse button

select the COLUMN Submenu Item

To Delete Multiple Columns

select a Cell in the first Column to be deleted with the Select (left) mouse button

pull down the **COMMANDS** Menu and select the **DELETE** Menu Item

select the **COLUMN** Submenu Item

Manipulation Tools

The fundamental tools for manipulating the Worksheet are the commands:

- Copy**
- Cut**
- Paste**
- Clear**
- Fill**

All of these commands, except **Fill**, are available as Menu Items on the **EDIT** Menu. **Fill** can be found under the **COMMANDS** Menu. Each command, with the exception of **Clear**, utilizes the Clipboard to accomplish its assignment. For example, when the contents of a Range of Cells are copied, they are actually saved to the Clipboard and are then available to be pasted onto a new location or several new locations on the Worksheet. The Clipboard currently holds a maximum of 100 Rows of data. Thus when moving sections of the Worksheet, keep the number of Rows handled at one time to 100.

Similarly, cutting a Cell or a Range of Cells from the Worksheet will copy the contents of the Cell or Range to the Clipboard as well as remove them from their current location on the Worksheet. The Clipboard will hold the contents of a cut Range to be pasted elsewhere on the Worksheet until a new Cell or Range is stored in the Clipboard.

In order to paste a string of text, a Formula, or a number; it must first be saved to the Clipboard via **Cut** or **Copy**. Once anything is stored in the Clipboard, it can be pasted any number of times on the Worksheet until the contents of the Clipboard is changed.

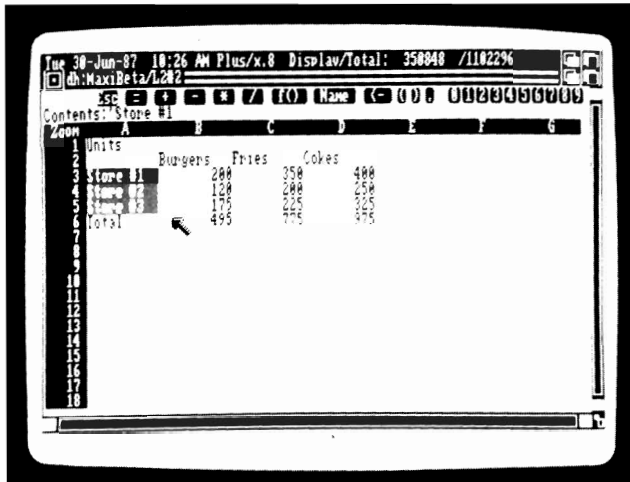
Each time you exercise either **Cut** or **Copy** it will override the current contents of the Clipboard. Thus care must be taken not to remove any items in the Clipboard that will be needed later without first pasting them somewhere on the Worksheet.

Fill operates very similarly to the **Paste** command with one important difference. With the **Paste** command, the contents of the Clipboard are pasted one time per execution of **Paste**. However, with the **FILL** command the contents of the Clipboard are replicated repetitively over a selected Range.

The **Fill Right** command copies the Cells in the left most Column across the selected Range. While **Fill Down** copies the Cells in the top most Row down the selected Range.

Copy

Highlight a Cell or Range to be copied with the Select (left) mouse button. Pull down the EDIT Menu and select the COPY Menu Item with the Menu or right mouse button. In the following Worksheet, the Range (A3:A5) will be copied to the Clipboard.



- Copy is also available by two other methods:
- pressing the F3 function key, or
- pressing the Right Amiga Key with the letter "C"

All three methods will save the contents of the selected Range into the Clipboard.

Paste

Once the Range is copied to the Clipboard, it can be replicated, or pasted, on another location on the Worksheet. Remember when selecting a site to paste a Range you must take care to find a blank section of the Worksheet which will be large enough to accommodate the entire Range of Cells in the Clipboard. If you attempt to paste a Range into an area of the Worksheet with data, the new data will overwrite the existing contents of the Cells.

If you want to paste into an area with data, it is best to insert enough rows or Columns to create a blank space to accommodate the Range in the Clipboard. (See the above section of this Lesson on inserting Rows and Columns).

In the updated Worksheet illustrated below, the Range (A3:A5) has been pasted on the Cells (A12:A14).

	A	B	C	D	E	F	G
1	Units	Burgers	Fries	Cokes			
2	Store #1	200	300	400			
3	Store #2	150	250	350			
4	Store #3	175	275	375			
5	Total	525	825	1125			
6							
7							
8							
9							
10							
11							
12	Store #1	200	300	400			
13	Store #2	150	250	350			
14	Store #3	175	275	375			
15							
16							
17							
18							

To Paste

select the Cell or Range to receive the data

- pull down the EDIT Menu
- select the PASTE Menu Item

Paste can also be exercised by:

- pressing the F4 function key, or
- pressing the Right Amiga Key with the letter "P"

When the Paste command is exercised, the contents of the Cell as well as the format of the Cell are pasted onto the new location. If a Cell's contents is a Formula, it will be copied and any Relative Cell references automatically adjusted. Absolute Cell references will remain constant.

For example:

If Cell A2 contains the Formula $A1 + 10$, then if Cell A2 is pasted on Cell A3, the Formula will become $A2 + 10$. If the Formula was $\$A\$1 + 10$, then the Formula in A3 would be $\$A\$1 + 10$.

If you want to paste the value of a Cell and not its Formula, you would use the PASTE DATA command under the EDIT Menu.

Cut

Cut operates very similarly to Copy. The major difference is that Cut not only saves the contents of the selected Range to the Clipboard, but also clears the contents of the Cells highlighted in the Range.

To Cut Data from a Cell or Range of Cells

select or highlight the Cell or Range of Cells

pull down the EDIT Menu

select the CUT Menu Item

Cut can also be exercised by:

pressing the F2 function key

pressing the Right Amiga Key with the letter "X"

Clear

Clear removes the Cells' contents and format from the Worksheet, but does not replicate either the Cell's contents, format or Formula into the Clipboard.

To Clear the Contents of a Cell or Range of Cells:

select or highlight the Cell or Range of Cells

pull down the EDIT Menu

select the CLEAR Menu Item

Clear is also available by:

pressing the F5 function key, or

pressing the Right Amiga Key with the letter "B"

If you wish to only clear the data from a Cell, while keeping the format in tact for the Cell or Range of Cells, select the CLEAR DATA Menu Item on the EDIT Menu.

Fill

Fill is a very useful tool for building Worksheets. The Fill command replicates the contents of a Cell repeatedly over a selected Range. Rather than doing a first copying the

contents of Cell to the Clipboard and then repeatedly pasting it over and over in each desired Cell, Fill performs all of these steps with a minimal of effort.

To Fill a Range of Cells with the Contents of the first Cell

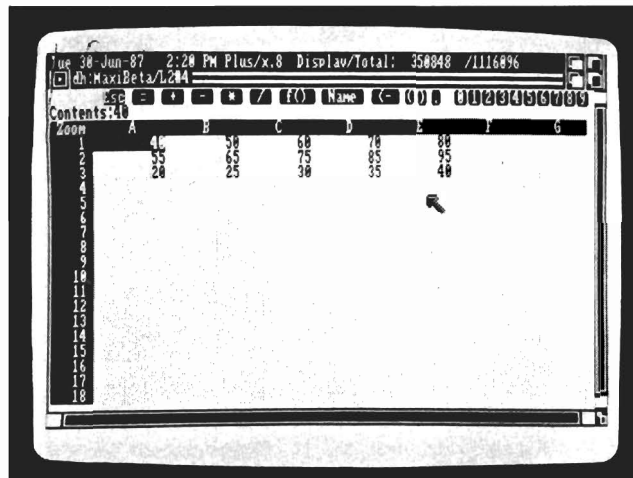
- select or highlight the Range of Cells to receive data
- pull down the COMMANDS Menu, selecting FILL Menu Item
- select either RIGHT or DOWN as appropriate on the Submenu

Fill can also be exercised by:

- pressing the F7 function key to fill right
- Pressing the Right Amiga Key with the letter "R" to fill right
- Pressing the F8 function key to fill down
- Pressing the Right Amiga Key with the letter "D" to fill down

Fill Right replicates a Column across the selected Range. Fill Down replicates a Row down the selected Range.

For example, key in the following data in a blank Worksheet.



If you select (highlight) the Range (A1:E1) and press F7 to Fill Right, the first Row becomes:

	A	B	C	D	E	F	G
1	40	40	40	40	40		
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							

If now you select (highlight) the Range (A2:E3) and press F8 the Fill Down Command the set of numbers become the same for each column.

Chapter 10

LESSON THREE:

FORMATTING CELLS, RANGES AND THE WORKSHEET

Formatting is the assignment of special characteristics to the data in a Cell or Range. This usually means the visual presentation, but it a Cell can also be formatted for use of Protection, Password, or Cell Notes.

The visual Format can quickly disclose the type of data in a Cell or Range. For example, formatting data with a dollar sign and two decimal points conveys the data is currency. Numbers in thousands or millions are easier to grasp when formatted with commas. Text that is formatted in bold will stand out from normal text thus enhancing its impact.

Available Formats include:

- Column Width**
- Alignment within Column**
- Color**
 - Background**
 - Active Cell**
 - Text**
 - Data**
- Numeric Data Options**
 - General**
 - Commas**
 - Fixed Decimals**
 - Currency**
 - Percentage**
 - Date**
 - Time**
 - Scientific Notation**
- Text Data Options**
- Grid Lines**
- Protection**
- Password**
- Cell Notes**

Any Cell, Range, or the entire Worksheet can be formatted with a minimum number of Menu selections. However, a Cell, Range, or the entire Worksheet must contain data entries before it can be formatted.

Multiple formats can be specified for the same Range of Cells. It is possible to show profits in a Cell with commas, in bold italics, and green pen color.

In this Lesson you will learn to:

- Format a Cell, Range, or the Worksheet
- Understand the application of each type of Format Option

Formatting Steps

Whether you are formatting one Cell, a Range of Cells, or the entire Worksheet; the steps to assign Formats are the same.

first: highlight the Cell, Range, or the entire Worksheet

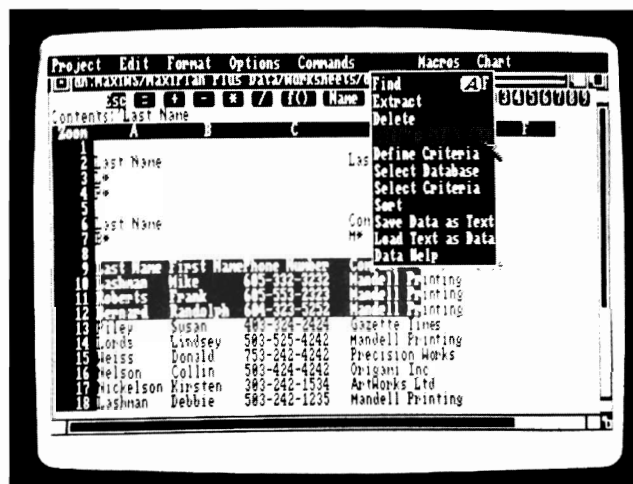
second: pull down the Menu with the Format Option, typically the FORMAT Menu

third: select any appropriate Submenu Options

fourth: SAVE the Worksheet

To highlight a Cell, move the Pointer to the desired Cell, click on it with the Select (left) mouse button.

To select a Range, move the Pointer to the upper left hand Cell of the Range, then click and drag to the bottom right hand Cell while depressing the Select (left) mouse button. Finally, release the mouse button. See the following illustration.



For larger Ranges, or the entire Worksheet, move the Pointer to the upper left hand Cell of the Range and click on it with the Select (left) mouse button. Move the Pointer to the bottom right hand Cell, hold the Shift key and then click on the Cell. This will quickly highlight the Range.

For very large Ranges and Worksheets, you would repeat the above steps but use the Zoom mode after clicking on the upper left hand Cell. To select a very large Range

- click on the upper left hand Cell
- enter Zoom by clicking on the word ZOOM in the upper left hand corner of the Worksheet window.
- after using scroll bars to bring the desired lower right Cell into view, click on the lower right hand Cell
- click on NORM to return to the Norm mode
- hold the Shift key, and select the bottom right hand Cell again.

This will highlight the entire Range.

Format Applications

What follows is a discussion of each available Format type. You are given specific examples of how the format option will enhance the information value of the data or make working with the Worksheet easier.

Column Width

Column width format dictates the maximum number of characters that can be displayed. If the Column's width is too small for the entry into one of the Cell of the Column, as series of #####'s will appear instead of the data entry in the Cell.

Column width is defined by selecting the FORMAT Menu and then the Menu Item WIDTH. A Submenu is available with three options:

- Standard
- Wide
- Specify

Standard is the default width of 10 characters. Wide is 31 characters. Specify allows you to key in a width of up to 67 characters wide.

When you select SPECIFY, a Requester appears with a prompt to key in the size of the column. This must be followed by clicking on the OK button.

Example: If the Column width is 10, and the number 234789123789 is keyed into a Cell, the Cell will display #####. The Column width must be enlarged to at least 12 to show all of the numbers. If you elect to format the Cell with commas, the #####'s will appear again if the Column is not sufficiently wide enough to show the digits as well as the commas.

Column Alignment

Alignment dictates whether the Cell's contents are displayed flush to the right of the Column, the left of the Column or evenly centered. How the data is aligned in a Column can help make a crowded Worksheet easier to read.

MaxiPlan has built-in defaults which dictate the alignment of data in a Cell depending on the type of data. Numeric data aligns on the right side of the Cell, while text data aligns on the left side of the Cell.

To override the default alignment, simply pull down the FORMAT Menu and select the ALIGNMENT Menu Item. In the associated Submenu are four options:

- Default
- Left
- Center
- Right

If the default option is checked, you can select one of the other options by moving the Pointer to the desired option with the Menu (right) mouse button. Whether data is text or numbers it will then be aligned according to your choice.

Example: The default option for numeric data is right alignment and the text it is left alignment. If one of the entries in a Column of numbers is "NA" standing for not available, the NA will automatically align to the left since it is treated a text. To make the NA line up with the column of numbers, the default alignment can be changed to RIGHT for the Cell or Column containing the NA entry.

Alignment can also be accessed by using SHIFT F3.

Color

MaxiPlan utilizes Color in a variety of ways. All the elements of the screen can be custom colored. Numbers and text can be highlighted by appearing in a contrasting Pen Color.

The Menu Item **COLOR SELECTION** under the **CONTROL** Menu provides the ability to custom mix colors. In the Enhanced Mode, up to 8 colors can be programmed while 4 can be used in the Standard Mode. Using the Enhanced Mode will take up additional memory that may limit the maximum size of the Worksheet.

To actually alter the color of the various parts of the Worksheet window, you must use the **PALETTE** Menu Item under the **FORMAT** Menu. Selecting this command displays the Color Selection Requester. Here you can determine the background color of the Worksheet as well as the color of the Borders, the Grid, the Pointer, the Cursor, the Active Cell, and the text.

In addition, you can select a different color for the contents of a specific Range of Cells with the Menu Item **PEN COLOR** under the **FORMAT** Menu. Thus it is easy to color code subtotals, totals, headings, etc.

MaxiPlan's built-in function, **COLOR** can alter the color of data displayed based on the values of data in the Cells of the Worksheet. For example, if a particular total is negative, it could be displayed in red. See the Reference section of this manual detailing the options for using the **COLOR** built-in function.

Example: A Cell in the Worksheet may contain a total of a Column. If this total were to exceed a certain number, such as the current sales high, you can create a statement with the **COLOR** Function which will automatically display the total in green if it is a new sales high.

Numeric Data

There are a variety of Formats available for numeric data. You choose the format you need using the **FORMAT** Menu. The format selected can clarify the meaning of the data as well as making it easier to read.

The default numeric format is **GENERAL**. If there are digits after the decimal, the exact number keyed in will be displayed, otherwise the decimal is dropped and the data is displayed as a whole number.

Other choices for formatting numeric data include:

Currency: Places the currency symbol specified in front and if desired behind the number and displays two decimal places. The currency symbol used by MaxiPlan is specified under the **SET CURRENCY** Menu Item on the **OPTIONS** Menu. To actually format a Cell or Range with Currency Symbols, you use the **CURRENCY** format under the **FORMAT** Menu.

Fixed: Displays number decimal places specified with **Decimals** Menu Item

Date: one of three combinations of day, month, and year

DecimalsDecimals: Specify the number of decimal places from 0 to 9

Percent: Displays the number as a percentage followed by "%"

Example: If a Column of data entries has a variety of decimal places, you can easily display them all in the same uniform decimal place by first specifying the number of decimal places with the DECIMAL Menu Item, then highlighting the Column Range and selecting the FIXED Menu Item.

Before Formatting

35
234.567
101.1

Formatted as FIXED

35.00
234.56
101.10

Text Data

Text type data can be formatted to be bold, italic, or underlined. Normal, that is without bold, underline, or italics, is the default option. Formatting text such as Worksheet labels helps to distinguish one type of data from another. To select any of the other three options pull down the FORMAT Menu and select Menu Item STYLE. The available Submenu will give you the choice between:

- Normal
- Bold
- Underline
- Italics

MaxiPlan allows you to choose more than one option at the same time. Thus you could have subtotals in italics and grand totals in bold with italics.

Example: A Worksheet of a Budget may have department subtotals. To make them stand out against the detail entries they can be formatted in Bold or Italics.

Grid Lines

The Grid Lines format causes the display of a Grid for the entire Worksheet. Grid Lines can enhance the readability of the Worksheet. The Grid Lines format only applies to the Worksheet screen display. To have Grid Lines printed, you must specify this under the PRINT SET UP Menu Item on the PROJECT Menu.

To access Grid Lines, pull down the Menu OPTIONS and select Menu Item DISPLAY GRID. The Submenu is a toggle switch between ON and OFF.

Example: Grid Lines can be used to help keep data entry straight on a large Worksheet. When Grid Lines are used with Freeze Titles, it helps prevent data from being keyed into the wrong Cells.

Cell Protection

A Cell or Range of Cells can be formatted for Cell Protection. This will prevent someone accidentally altering the contents of a Cell such as a data entry or a Formula. While the process of actually formatting the Cell for Cell Protection is the same as for any other type of format, for Cell Protection to be in effect the PROTECTION Menu Item under the OPTIONS Menu must be selected and the Submenu Item ENABLED also selected.

To format a Cell or Range for Cell Protection, pull down the FORMAT Menu and select the PROTECT Menu Item. This has an associated Submenu for indicating YES or NO. See LESSON EIGHT: CELL PROTECTION for further details.

Example: When a data entry person is using the Worksheet, you may wish to guard against inadvertent changes to existing data or any special formulas. The Cells containing this information can be formatted for Cell Protection before handing over the Worksheet for further data entry.

Password

Formatting Cells with Password will allow the contents of the Cell to be hidden. Thus if certain critical information is best kept under wraps, the Cells containing this data can be formatted with Password. When the Worksheet is opened, Cells with the Password format will appear with a series of dashes instead of the normal Cell contents.

If the user has access to view the information, they can key in the Password in a Requester and all of the dashes will be removed. See LESSON EIGHT: CELL PROTECTION for further details.

Example: Sensitive data like salaries, commission formulas, etc. may be on a Worksheet which is used by clerical staff. To prevent these type users from seeing this data the Cells can be formatted with Password.

Chapter 11

LESSON FOUR: CREATING FORMULAS

Formulas are the vehicle for performing calculations in MaxiPlan. They are the mechanisms used to add a Row of numbers in the Worksheet, compare one Cell to another in the Worksheet, or look up a value based on the conditional evaluation of data in the worksheet. Respectively these Formulas may result in the total sales for the quarter, a comparison of quarterly sales between divisions, and then the selection of a bonus formula if a quarterly sales target is met for the division managers. Thus Formulas are the means to an analytical end.

In this Lesson you will learn to:

- **Structure Formulas**
- **Use Operators**
- **Use Operands**
- **Select Order of Calculation Precedence**
- **Nest Formula Commands**
- **Use Absolute and Relative Cell References**
- **Use Built-in Functions**

Structure of Formulas

Formulas are mathematical expressions. In MaxiPlan, Formulas always begin with an equals operator "=", thus making a Formula an equation. When creating a Formula, you can either key in the equals operator from the key board, or use the "=" Formula Button

across the top of the screen. This informs MaxiPlan a Formula is about to be entered in the Cell. You will see the "=" appear in the Cell Contents Display.

Typically, a Worksheet displays the results or Values of Formulas in the Cells of the Worksheet, while the Formula is shown in the Cell Contents Display. It is possible to show the Formulas by pulling down the OPTIONS Menu, selecting the SHOW Menu Item and then selecting the FORMULAS Submenu Item.

The remainder of the Formula is comprised of two elements:

- **Operators:** dictate the actions to be performed in the Formula such as add, subtract, divide, multiply, or compare
- **Operands:** indicate the values upon which the operators act such as a constant number, a Cell Address, a Range, a Named Range, an Expression, or the results of a Pre-defined Function.

An example of a simple Formula is:

=B3*6

where B3 and 6 are operands and * is the operator.

Types of Operators

Operators are of two types: arithmetic and logical. Arithmetic operators return numeric results, while logical operators return either a 1 if the results are true or a 0 if the results are false. It is possible to include both types of operators in the same formula. The symbols for each operator are shown below.

•Arithmetic

Operators	Example	Result
+	A + B	sum of A and B
-	A - B	difference between A and B
*	A * B	product of A and B
/	A / B	A divided by B
^	A ^ B	A to the B power

LESSON FOUR:

•Logical

Operators	Example	Result
=	A = B	TRUE if A equals B
<	A < B	TRUE if A less than B
>	A > B	TRUE if A greater than B
<=	A <= B	TRUE if A less than or equal to B
>=	A >= B	TRUE if A greater than or equal to B
<>	A < > B	TRUE if A not equal to B

Type of Operands

Operands are the objects of the actions of the formula operators. They take many forms including:

Constants:

Any integer, decimal number, or exponential number. MaxiPlan accepts up to 15 digits

Cell Address:

Values contained in Cells can be referenced one of two ways: Absolutely or Relatively. A discussion of both methods follows this section.

Ranges:

A collection of Cells, or a Range, can be referenced in a formula. The Range can be selected by one of three methods

- keying the Cell Addresses to be included (B5:D8),
- clicking on the beginning Cell and dragging to the ending Cell, or
- for large Ranges
 - click on beginning Cell
 - reposition the Pointer
 - hold the Shift Key as you
 - click on the Ending Cell

Named Ranges: MaxiPlan allows you to assign meaningful names to a Range of Cells for later reference. To name a Range:

- Pull Down the Edit Menu
- Select Define Name Menu Item
- Key in the Name in the Requester
- Click on the OK button, or press Return

The following steps to Access a Named Range are described below.

- Click on the Name Formula Button
- Select the appropriate Name
- Double Click on the Name to incorporate into the Formula

Expressions:

A special type of operand is an Expression. An Expression is a statement that is evaluated and then acted upon by the operator. Typically it solves for either true or false, and then branches given the results.

Expressions can compare contents of Cells, text strings, or the results of nested Formulas.

Built-in Functions:

Another type of operand is a pre-defined function. MaxiPlan has over 70 built-in functions. A discussion of how to use built-in functions follows below. A detail list of Functions can be found in the Reference section of this manual.

Order of Precedence

MaxiPlan follows set rules for performing actions dictated by the operators. Multiplication and division (* or /) calculations are executed before an addition or a subtraction (+ or -). Thus in the statement $A * B + C$, A and B are first multiplied and that result is added to C. Exponents have a higher precedence over multiplication and division, while the Logical Operators (=, <, >, =, <=, >=) have the lowest priority of calculation.

Nesting

Nesting is a method to override MaxiPlan's Order of Precedence. The nesting is defined by a series of imbedded parenthesis. The Expression in the inner most set of parentheses is calculated first. Its result is in turn used in the Expression of the next outward set of parentheses. Calculation order begins with the inner most set and moves outward until all Expressions have been performed. Thus if an addition or subtraction should be performed before a multiplication, the statement should be surrounded by a set a parentheses. For example:

$= 100 + (B4 * (B5 + (B6 * 2)))$

LESSON FOUR:

Cell References

As mentioned above, often Formulas use Cell Addresses as operands. There are two different methods of referring to a Cell: Absolute and Relative. The two methods effect the how the Cell is referred to when the Formula is duplicated.

Relative Cell References:

Relative Cell References always refer to Cells a specific number of Rows or Columns away from the location of the Formula. Thus when a Formula with Relative Cell References is duplicated with the Fill command or pasted onto another location on the Worksheet, MaxiPlan finds the Cell that is the same number of Rows and Columns from the new site of the Formula.

For example: Suppose you have a Formula to calculate Profit at Cell B4 which is defined as being the difference between B2 where you have a Sales figure and B3 where you have a Cost figure.

The information in the B Column is for the month of January. In Column C you have the figures for February. If you Copy the Formula at B4 and paste it at C4, since it is a Formula with Relative Cell References, it will be comprised of the difference between C2 and C3.

If the Formula at B4 is filled in over the Range (C4:E4), the Cells would respectively contain:

Cell Address

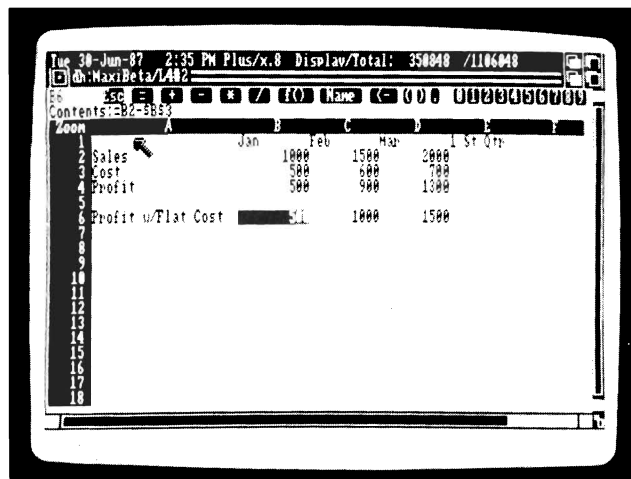
Cell Contents

C4

= C2-C3

D4

= D2-D3



The screenshot shows a spreadsheet window titled 'Tue 30-Jun-87 2:35 PM Plus/x.8 Display/Total: 350040 /1106040'. The active cell is B4, containing the formula '=B2-B3'. The worksheet has columns labeled 'Jan', 'Feb', 'Mar', and '1st Qtr'. The rows are labeled 'Sales', 'Cost', 'Profit', and 'Profit w/Flat Cost'. The data is as follows:

	Jan	Feb	Mar	1st Qtr
Sales	1000	1500	2000	
Cost	500	800	700	
Profit	500	900	1300	
Profit w/Flat Cost	500	1000	1500	

Absolute:

An Absolute Cell Reference is used in a Formula when you want the Cell Address to be constant. Whenever the Formula is copied or replicated onto another location on the Worksheet, it always refers to that exact Cell Address.

For example, if the cost were to remain constant, then you could always use the same Cell in your formulas. Thus the Formula for Profit in January at B6 would become:

= B2-\$B\$3

The referral to Cell B3 is made Absolute by inserting a "\$" in front of both the B and the 3 in the Cell Address. When the Formula is pasted on the Worksheet it will always refer to Cell B3. Thus when the Formula in B6 is filled in over the Range (C6:D6)

Cell Address	Cell Contents	Value
C6	= C2-\$B\$3	1000
D6	= D2-\$B\$3	1500

Cell references can be partially Absolute, that is only the Row or the Column is constant. To denote a partial Absolute Reference the "\$" is inserted only in front of Column Letter if that is to be fixed, or the Row Number if that is to be fixed.

For example, if the cost is a fixed percentage of sales the formula becomes

= B2-B\$2*.5

If filled in over the Range (C8:D8), the Cells of the Range would respectively contain:

Cell Address	Cell Contents	Value
C8	= C2-C\$2*.5	750
D8	= D2-D\$2*.5	1000

The final Worksheet appears as follows:

LESSON FOUR:

	A	B	C	D	E	F
1	Jan	Feb	Mar	1 St Qtr		
2	Sales	1000	1500	2000	4500	
3	Est Cost	500	600	700	1800	
4	Profit	500	900	1300	2700	
5	Profit w/Flat Cost	500	1000	1500	3000	
6	Profit w/Rate Cost	500	750	1000	2250	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						

Built-In Functions

MaxiPlan has a set of pre-defined formulas which perform specific calculations or comparisons. The results of a Function can be used either as operands for other formulas, or the Function can be a stand alone as a Formula in its own right.

Functions are comprised of the:

- **Function Name**
- **Argument or Arguments of the Function**

which are in the form

NAME(argument)

NAME(argument 1, argument 2,..)

Some Functions do not require an argument. Their results are the same regardless of an argument, while Functions that require arguments will return results which are dependent on the argument used.

If a Function requires more than one argument, the arguments are evaluated from left to right.

The Name of the Function defines the type calculation to be carried out. It's argument is the value incorporated into the calculation. Arguments can be a Cell Address, a Range of cells, a Named Range, or the results of another Function. In some cases, an argument is even a Worksheet File Name. Each function requires its own unique type of argument.

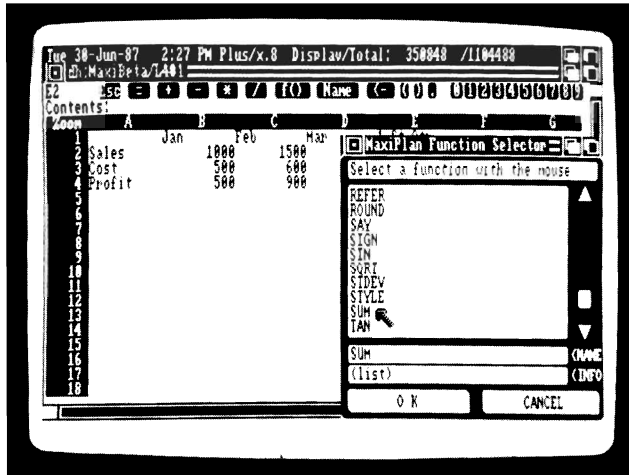
Accessing Functions

The MaxiPlan window has a special Formula Button for accessing functions:

f().

Click on this button to display the MaxiPlan Function Selector window shown below. In this window you can scroll between the names of the over 70 built-in Functions. The window has an Info display which briefly describes the argument needed for the Function.

To incorporate a Function in a Formula simply:



•click on the Function Name

the cursor automatically moves to the Cell Contents Display where you key in the appropriate Function argument

•press the Return Key to accept the Function and its arguments

The cell will now display the results of the Function.

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A Formula may only be the Function and its argument. If that is the case, you must insert an equals sign before selecting the Function in the MaxiPlan Function Selector window.

Types of Functions

There are 9 types of functions including:

- Statistical**
- Financial**
- Logical**
- Database**
- Mathematical**
- Trigonometric**
- Index**
- Date**
- Special**

The Reference Section of the manual lists each Built-in Function alphabetically under its classification.

Chapter 12

LESSON FIVE:

CONVERTING MaxiPlan DATA INTO A DATABASE

Turning the data entries of a Worksheet into a Database is a powerful analytical tool. MaxiPlan has the ability to treat any set of Rows and Columns of a Worksheet as a Database. This will allow you to Sort Rows, Extract Rows, or even Delete Rows based upon matching certain specifications.

Up to 63 Databases can be defined per Worksheet. The Columns included in the Database are the Fields of the Database. Each Column or Field of a Database contains one type of information to describe an item included in the Database. For example, if an address book is considered a Database, then one Field would be the person's name, another would be their phone number, a third would be their street address, and so forth.

Records of the Database are represented by the Rows of the Worksheet. A Record is the collection of information about one particular item in a Database. Using the address book example, a Record would be all the information associated with Mary Smith.

Records can be sorted alphabetically or in numeric order based on information in any of the Fields. MaxiPlan can selectively extract certain Records or selectively delete Records from a Database. Up to 63 such sorts, extractions, or deletions can be defined per Database. However, the total combination of Named Ranges, Named Criteria, and Named Databases is 64 per Worksheet.

MaxiPlan allows simultaneous ascending and descending sorts on any number of Fields. The Sort Criteria governs the order that each Field is evaluated for ranking. Thus the Records of the address book could first be ranked descending by last name, then ranked ascending by city, and finally ranked descending by phone number.

In this Lesson you will learn to:

- **Open an Existing Database**
- **Create a New Database**
- **Remove a Database**

- **Edit a Database Range or Criteria Range**
- **Remove a Criteria Range**
- **Use "wildcards" for finding Record matches**
- **Sort Records**
- **Find Records**
- **Extract Records**
- **Delete Records**
- **Convert Data to Text Format**
- **Import Text Data**
- **Execute an Easy Sort based on the Contents of One Column**

MaxiPlan Database Insights

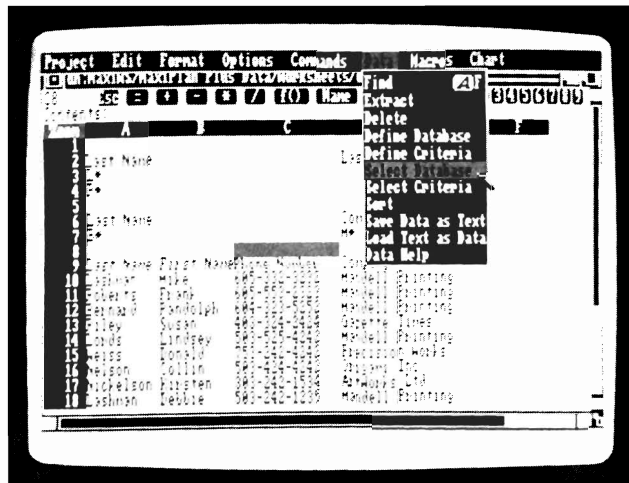
For those familiar with Database capabilities on popular spreadsheet programs such as Lotus 1-2-3, there may be some initial confusion as to how to set up a Database with MaxiPlan. MaxiPlan requires that you physically select a Range in the Worksheet and name it as a Database. It also requires that certain Cells or Ranges distinct from the Database Range be set aside to key in Database Criteria. These Ranges too must be named.

When defining a Database in MaxiPlan, the first Row included in the Database must contain the names of the Fields included in the Database. Thus, if you want to define a middle section of a Worksheet as a Database, you must make certain that the first Row of the Database Range contains labels or Field Names. If this is not the case, you must insert a Row at the beginning of the Database to key in labels or Field names before highlighting the Range of Cells for the Database.

Open an Existing Databases

On the MaxiPlan Utilities/Data Disk accompanying the program are Drawers containing example Worksheet files. Open the Database Worksheet drawer and select the Database Demo Worksheet. This will bring up a Worksheet which has the pre-defined Database named DATABASE defined within it. You will note that the Database Demo Worksheet contains a list of names both last and first, phone numbers and company affiliations.

To select an existing Database, follow the steps as shown on the Worksheet illustrated below.



- pull down the DATA Menu
- select the SELECT DATABASE Menu Item

This brings up the MaxiPlan Name Selector window listing the Databases in our example. We want to select DATABASE.

- double click on the name DATABASE in the MaxiPlan Name Selector window.

Any Database criteria subsequently selected will be applied to the selected Database, in this case the Database named DATABASE.

Specify a New Database

Before any sorting of Rows or Records can be conducted, a Database must be defined. Once the Database is defined, it is automatically selected during that particular MaxiPlan

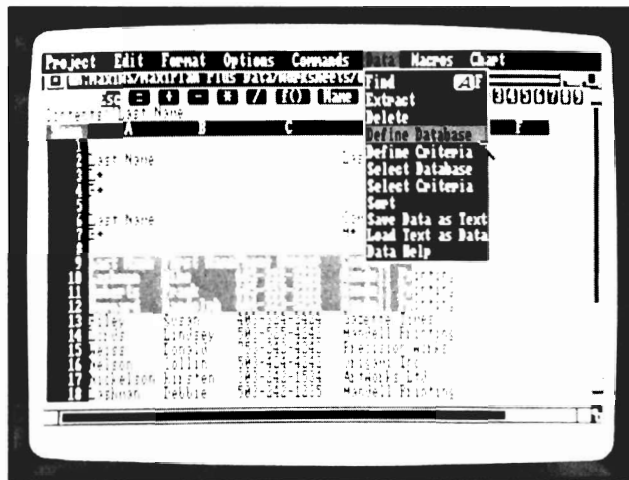
session. If you wish to use another Database, you must select the new Database from the MaxiPlan Name Selector window.

Looking at the DATABASE DEMO Worksheet, we can define a new Database and name it SAMPLE. To define a section of the Worksheet, or even the entire Worksheet as a Database you must:

- **select the Rows and Columns of the Range to be included in the Database in the same manner that any Range is selected.**

The first Row of the Database Range must include the names of the Fields of the Database. In the DATABASE DEMO Worksheet, click on cell A9 and drag to Cell D12 to highlight the Range to be included in the SAMPLE Database.

- **pull down the DATA Menu and select the Menu Item DEFINE DATABASE as shown below.**



A Requester for keying in the name of the Database will appear. It can be up to 16 characters including blanks as is the convention for naming a MaxiPlan file.

- **key in the name SAMPLE.**
- **click on the OK button to accept the name and to enter it into the Database Name Selector window.**

Note: If you wish to treat a group of Cells in the middle of your Worksheet as a Database. If the names of the Fields are not in the first Row of the desired

Range, you must insert a blank Row and then key in the names of the Fields in order to properly create the Database.

Remove a Database

A Database is removed in the same manner as any other Named Range. The command DELETE NAME under the EDIT Menu will bring up the MaxiPlan Name Selector window. This lists the names of all Named Ranges including Databases, and the Database Criteria Ranges. To remove a Database, click on its name and then click on the OK button. The data from a Database can be removed by highlighting the Range encompassing the Database and using the Clear command. The name of the Database will remain in the Name Selector window.

Edit a Database Range or a Criteria Range

The definition of a Criteria can be altered by editing the contents of a Cell describing the Criteria. Just click on the Cell to be edited and move the Pointer to the Cell Contents Display. With the Backspace Key you can remove characters, or simply key in additional characters with the keyboard. Press return to accept any altered Cell contents.

If the actual Range of Cells is to be altered, highlight the Range. Pull down the DATA Menu and select SELECT DATABASE or SELECT CRITERIA as is appropriate. You will be asked to key in a name, key in the existing name or a new name. If you key in an existing name you will be asked to override the file. You should reply yes.

Use of Wildcards

When matching text in a Database Criteria, you may want to an exact match of every character, or you may want to use Records that fit a broader criteria such as all last names that begin with the letter G. There are three wildcard characters to help locate Records by broader matching criteria. The three characters are:

- * - used to match zero or more characters
- ? - used to match a single character
- ~ - used to negate matches

Below are examples of the usage of these wildcards and the results to be expected.

<u>Criteria</u>	<u>Result</u>
J*	Every Record in this Field beginning with J
~ Smith	Every Record in this Field except for Smith
J??ps	Every Record in this Field 5 characters long, beginning with J and ending in ps
~ J*	Every Record not beginning with J.

Sort Records

Reordering the Records of a Database according to a certain attribute or attributes of the data is a simple task for MaxiPlan. Records can first be ranked in ascending order based on one Field, then ranked by descending order in another Field. Any number of Fields or attributes can be included in the Sort.

Establish the Sort Criteria

Before a Sort Criteria or any other type of Database criteria can be defined, a Database must be selected. Thus if you have not done so, pull down the DATA Menu and select SELECT DATABASE.

If you wish to create a New Database, select the Range of Cells to be included in the Database, pull down the DATA Menu and select DEFINE DATABASE. A Requester will appear to key in a name. The newly created Database will then become the selected Database.

Once a Database is selected, to tell MaxiPlan how to Sort the Records, you must first establish the Sort Criteria. A special area of the Worksheet must be set apart from the Database for keying in the Sort Criteria. In the DATABASE DEMO Worksheet, the range D2:E3 has been set aside for a Sort Criteria. When extracting certain Records, deleting certain Records, or finding certain Records; a special area is similarly required to describe the criteria for those type tasks.

You can define your own Sort Criteria by:

- **finding a blank area of the Worksheet to key in the information required to describe the Sorting Criteria**
- **key in the specifications for the Sort Criteria laying out the information in the Range as follows:**

first row: The Names of the Fields each in a separate Cell

second row: A Number below each Field name dictating the order it is ranked in the sort with a minus for descending sorts and no minus for ascending sorts.

- **highlight the Range of Cells where the Sort Criteria was keyed in**
- **pull down the DATA Menu**
- **select DEFINE CRITERIA**
- **key in the name of the Sort Criteria in the Requester**

- click on the OK button to accept the name

Note: It is often a good idea to place the name for the Sort Criteria Range above the actual Range. This helps identify which criteria performs which types of sorts.

Below is a Worksheet with an example of a Sort Criteria Range for the DATABASE DEMO Database:

	F	G	H	
1	Phone Number			--- Sort Criteria Name (not required)
2	Number	Last	First	--- Fields to be sorted
3	-1	2	3	--- Sorting order

In the above example, the Range for the Sort Criteria is (F2:H3). Row one is an identifying label and not part of the Sort Criteria Range. You will note that sorting order is dictated by the magnitude of the number, i.e. 1 before 2 before 3.

A negative sign before a sorting order number indicates it is a descending sort. If no sign is specified, it is understood to be positive and the sort will be in ascending order.

Key in the above Sort Criteria definition, then

- pull down the DATA Menu
- select the DEFINE CRITERIA Menu Item

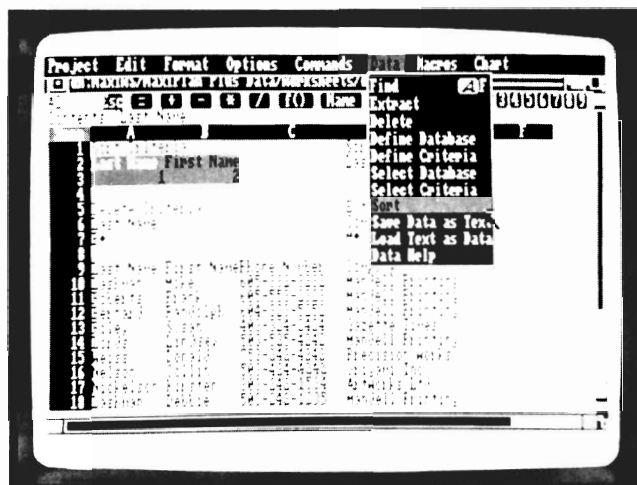
This will bring up a Requester for keying in the name of the Sort Criteria.

- Key in: Phone Number
- click on the OK button

This will enter the Named Range Phone Number into the Criteria Selection Window.

Execute Sort

Once a Sort Criteria is defined as well as the Database, you can now proceed to Sort the Records of the Database. To actually execute a Sort you follow the steps shown in the illustration.



- pull down the DATA Menu
- select the SORT Menu Item

If you have not yet selected a Database upon which to conduct the Sort, the MaxiPlan Name Selector window listing the named Ranges defined for the Worksheet is automatically displayed. You must select the appropriate Database by a double click on the Database name. Should this window appear. If this should be displayed, for our example select DATABASE.

If you have not yet selected the particular Sort Criteria, the MaxiPlan Name Selector window will be displayed. You must select the appropriate Named Range which describes the particular Sort Criteria. Select SORTING CRITERIA should this window be displayed.

If a Database and Sort Criteria were used earlier in the MaxiPlan session, MaxiPlan will automatically refer to the last accessed Database and Sort Criteria until you override its default by manually selecting another Database by pulling down the DATA Menu and selecting SELECT DATABASE Menu Item. Changing to a different Sort Criteria Range is accomplished by selecting the SELECT CRITERIA Menu Item.

However, you may change the sorting order of a currently selected Sort Criteria by editing the Cells of the Sort Criteria Range displaying the sort order. For example, inserting a "-" in front of a sort order will make it descending, or interchanging a 1 and a 2 will make the Records first sort by the Field that was originally of second precedence.

Find Records

In order to find a specific Record or Records, a description of the criteria for finding the Records is keyed into a special area of the Worksheet. Once the information is keyed in, it is then named by selecting the Menu Item SET CRITERIA RANGE under the DATA Menu.

Finding a Record or Records involves analyzing each Record of the Database to see if certain Fields of the Record match the Find Criteria. This is similar to using an Address Book where you typically want to match a specific first and last name. Again using the DATABASE DEMO Worksheet, you can specify your own Find Criteria.

Define the Find Criteria Range

Just as you had to first select a Database when constructing a Sort Criteria, you also have to select a Database before defining a Find Criteria. See the above sections discussing how to select an existing Database or how to define a Range as a Database.

The format for a Find Criteria Range as well as Extract Criteria and Delete Criteria take the form of a matrix. The First Row of the matrix must contain the names of the Fields or labels of the Columns of the Database. Subsequent Rows contain the actual matches for either finding Records, extracting Records or deleting Records. In general, the layout of a

Find Criteria range is as follows:

	I	J	
2	First	Last	< ----Names of Fields in Find Criteria
3	Mike	Jones	< ----First Match, or
4	Lindsey	L*	< ----Second Match

When conducting the matches, MaxiPlan will only find Records which match in both Fields, that is all entries within each Row of the Find Criteria Range are matched together. However, MaxiPlan will "find" the first Record that matches any of the Rows of the Find Criteria Range. Thus a Find will be satisfied by Mike and Jones or Lindsey and any last name starting with the letter L. Whichever one turns up first in MaxiPlan's search will satisfy the Find Criteria.

For example, if the Range (G6:H7) of the Worksheet is blank, key in the following Find Criteria Range:

	G	H	
5	Find Number	<	Name of Find Criteria (not required)
6	First Last	<	Field Names
7	Lindsey Lincoln	<	Desired Match

To name this Criteria Range,

- pull down the DATA Menu
- select the DEFINE CRITERIA Menu Item
- key in the name: Find Number
- click on the OK button

It is possible to find several Records with the same execution of the Find Criteria. You can edit the Criteria Range by continuing to key in additional desired matchings as shown below:

	I	J
1	Find Number	
2	First	Last
3	Lindsey	Lincoln
4	Debbie	Lashman

Once the criteria information is keyed in, select the Range (I1:J4)

- pull down the DATA Menu
- select DEFINE CRITERIA Menu Item
- key in the name: Find Number

A Requester will be displayed asking: Redefine this Criteria Range?

- click on the OK button to enlarge the possible matches

Our final example of the Find Criteria will find a grouping of Records with a common attribute such as a last name beginning with the letter "P". To find all the Records with beginning with P, you use the "wild card" instruction *, as described above.

A Find Criteria Range using the Wild Card should be constructed as shown below:

	K	
1	Names with P	name of the Find Criteria (not required)
2	Last	name of the Field
3	P*	matching Criteria first letter P followed by anything

Name this Criteria Range: "P" Names

Execute Find

To Find Records, you must first select the Database Range and the Find Criteria Range. Then you:

- **pull down the DATA Menu**
- **select FIND Menu Item**

This will then execute the Find command and the Active Cell will then be located at the first Record to match the Find Criteria.

Extract Records

It is possible to extract certain Records by a particular criteria and then copy them to another portion of the Worksheet for separate analysis or display. However, before an extraction can be executed, the Database must be selected as well as the Range containing the Extraction Criteria.

If you have more than one match, use the Up and Down arrow keys to move between the matching Records.

To exit Find, use the Escape Key or the ESC Formula Button.

It is always possible to edit the Cells in the Find Criteria Range if you want to find different Records.

For example, if you decided you wanted to Last Names beginning with the letter "S", you could edit the wildcard example above to be S* in Cell K3.

Specify the Extract Criteria Range

The Extract Criteria Range is set up in the same manner as Find Criteria Range, that is:

- **first row: The Names of the Fields which contain the Extracting Criteria**
- **second row: The matching criteria for the extraction**
- **third row: Next matching criteria for the extraction etc.**

The Extract Criteria Range may have as many Columns as the number of Fields you want to exactly match, and as many Rows as complete matches you desire.

To define the Extraction Criteria Range:

- key in criteria specifications in a Range
- select the Range
- pull down the DATA Menu
- select DEFINE CRITERIA
- key in Criteria Range Name
- click on the OK button

Execute Extract

Extracting Records and then pasting them onto a new section of the Worksheet requires the same basic steps you performed to Sort and Find Records, that is:

- select or define a named Database Range
- select or define a named Criteria Range
- then execute the Sort, Find, Delete, or Extract Menu Item

Extract differs from the other actions on the DATA Menu in that it requires you to select a Cell on the Worksheet at the exact location where you want the extracted Records to be pasted. The selected Cell will become the upper left hand corner of the Range listing the extracted Records. Thus you need to assess the space required to accommodate all of the extracted Records.

The Extract Criteria Range is formatted in the same manner as the Find Criteria Range. It is matrix whose first Row is the Field names or Column labels of the Database which contain the matches, with the remaining Rows of the matrix containing the actual matches for the extraction. Just like the Find Criteria, all items in a Row must be matched in order to extract the Record, that is First Field and Second Field and so forth. However, any particular Record will suffice to satisfy the Extraction Criteria, that is either match the first set of criteria, or the second set or any remaining set.

Thus an Extract Criteria such as the one show below:

	L	M
1	Company	Phone
2	Mandell Printing	345-5678
3	Mandell Printing	654-8907
4	Orgami	876-0987

Is satisfied in the following manner:

Mandell Printing AND 345-5678

OR

Mandell Printing AND 654-8907

OR

Orgami Company AND 876-0987

To actually extract the Records:

move the Active Cell to a blank portion of the Worksheet making certain there is enough blank Cells to accommodate the copied Records

- **pull down the DATA Menu**
- **select SELECT DATABASE Menu Item**
- **select the name of the Database for extracting the Records**
- **click on the OK button**
- **pull down the DATA Menu**
- **select SELECT CRITERIA Menu Item**
- **select the name of the Extract Criteria Range for the desired record extraction**
- **click on the OK button**
- **pull down the DATA Menu**
- **select the EXTRACT Menu Item**
- **select either ALL or UNIQUE from the Submenu.**

If you select UNIQUE, only the unique Records matching the Extraction Criteria will be extracted. ALL extracts every matching Record.

The Extracted Records will be copied to the blank portion of the Worksheet in the Range anchored in the upper left hand corner by the Active Cell.

Delete Records

MaxiPlan allows you to selectively Delete Records by a specified criteria. For example, if there is data in the Worksheet Database that is associated with a certain date in a Field or Column listing dates, Records can be deleted for that particular date. Deleting records requires that a Database Range is defined, as well as a Delete Criteria Range.

Describe the Delete Criteria Range

A Delete Criteria Range is established in the same manner as other Criteria Ranges. The format is the same as that use for Find and Extract. It is also possible to use the "wild card" * when defining the Delete Criterion. Once described, the DEFINE CRITERIA command is executed.

Remove a Criteria Range

A Criteria Range can be removed by the DELETE NAME command as described under Removing a Database Range. It can also be removed by highlighting the entire Criteria Range and executing the Clear command. This will remove the data form the Cells. However, the name will still be listed in the MaxiPlan Name Selection window.

Delete a Single Record

When executing the DELETE Menu Item on the DATA Menu, there are two choices available on the Submenu:

- SINGLE RECORD**
- MATCHING RECORDS**

To delete a particular Record, simply highlight the Field of the Record in the Delete Criteria. Pull down the DATA Menu, select DELETE and then select SINGLE RECORD. The Record will then be removed.

Delete Multiple Records

Multiple Records with a common attribute can be deleted in unison. The MATCHING RECORDS command enable this action.

Executing the MATCHING RECORDS command results in the Active Cell highlighting the first record to match the Deletion Criteria and the display of a Requester with the prompt: "Delete this Record?" with a button to click on yes and another to click on no as a response. After your response, the next matching Record is highlighted and again the "Delete this Record?" prompt is again displayed. You must confirm the deletion of each Record selected by the Delete Criteria in the Database.

Save Database Records as Text

MaxiPlan allows you to save any section of the Worksheet defined as a named Database as a tab delineated text file for export to other programs. For example, a Database of names and addresses could be exported as a text file for merging into a form letter or for output as labels on a word processor program. MaxiPlan text files can be examined and modified by text editors such as TextCraft, EMACS, Ed, etc.

Text File Format

The first line of the text file contains the Field Names, these will be separated by tabs and the line will end with a return. Subsequent lines will be the Records of the Database with the contents of each Field or Cell separated by a tab and each Record or Row separated by a return.

Execute SAVE DATA AS TEXT

When you select the SAVE DATA AS TEXT Menu Item on the DATA Menu, MaxiPlan displays the MaxiPlan File Request window. You must key in the name for the text version of the file in the "File" prompt line. In addition, you can choose the directory for the text file in the "PATH" prompt line. MaxiPlan automatically defaults to the current directory.

Key in a name which is meaningful to you and which will help you distinguish between the text file version of a Database and the Named Range version of the Database.

Load Database Records as TextLoad Text Data

MaxiPlan also enables you to import text files into MaxiPlan. Such text files may have been communicated over a modem from either another Amiga or any other computer. They may be files from other programs or simply Databases from another MaxiPlan Worksheet. Regardless of the source of the text file, MaxiPlan can import a text file providing it is in the tabular delineated format discussed above, and there is sufficient expanded memory.

Execute LOAD DATA AS TEXT

To load a text file, either open a New Worksheet or select a blank section of an existing Worksheet large enough to accommodate the importing text file. The sight of the Active Cell will be the top left hand anchor Cell for the text file.

Pull down the DATA Menu and select the LOAD DATA AS TEXT Menu Item. This will result in the display of the MaxiPlan File Request window which lists the names of all the available text files on the active drive. Click on the desired text file name to load the file into the Worksheet at the location of the Active Cell. The same text file can be loaded in any number of times into any number of Worksheets or location on the same Worksheet.

Care must be taken to devote enough space on the Worksheet when importing a text file into an existing Worksheet. Imported Records will override the existing contents of Cells of the Worksheet.

Easy Sort

Often you will want to Sort the Records of a Database based on the contents of one Column or Field. MaxiPlan provides a quick and easy method for performing such sorts without having to bother to define a Database Range and Database Criteria. Menu Item EASY SORT on the COMMANDS Menu is used for sorts based on one Column.

When using Easy Sort, you must highlight or select a Range of Cells to be sorted. The left most column in the Range will be the basis for the sorting. Thus if you wish to include data in Columns to the right, you must copy Column which is the basis of the Easy Sort to the left of these Columns so they can be included in the selected Range.

Assuming that all the Columns to be sorted are in a contiguous Range, and the Column for the basis of the sort is the left-most Column, to execute Easy Sort

- select the Range to Sort
- pull down the COMMANDS Menu
- select EASY SORT Menu Item
- select one of the Submenu Items ASCENDING or DESCENDING

The screen will go blank for a moment and will display the message Sorting in Process. You will then be returned to the Worksheet window and all of the Rows of the selected Range will be sorted based on the contents of the first Column on the left of the Range.

Chapter 13

LESSON SIX: PRINTING AND DISK FILE OUTPUT

MaxiPlan has the ability to output print copies of either portions of a Worksheet or the entire Worksheet. In addition, Worksheets can be printed as Disk Files for later printing.

In this Lesson you will learn to:

- **Customize printed output by selecting from Print Set Up**
- **Set Margins in Preferences**
- **Print a portion of the Worksheet**
- **Print the whole Worksheet**
- **Output to a Disk File**

Customizing Printed Output

Several options are available which control the appearance of the print output. These options are listed under the PRINT SET UP Menu Item on the PROJECT MENU. The print output options include:

- **None - none of the following options is elected.**
- **Grid Lines - the Grid Lines will be printed delineating the boundaries of each Cell.**
- **Page Number at Top - a Page Number appears at the top of each page.**

- **Row/Column Headings - the Column Letters and Row Numbers are printed.**
- **Date/Time at Top - the Date and Time of the output is printed appear at the top of the printout. They are obtained from the Amiga Internal Clock.**
- **Title at Top - the Customized Title is printed at the top of the page.**
- **File Name at Top - the MaxiPlan File Name of the Worksheet is printed at the top of output.**
- **Set Print Title - when this option is selected, a Requester appears for keying in the Customized Title for the worksheet which can be printed at the top of each page of the output. You must first select Title at Top.**

Any number of the options can be elected at the same time. Thus it is possible to have the Date, Time, File Name, Customized Title, Page Numbers, etc. appearing in each page of the printed output.

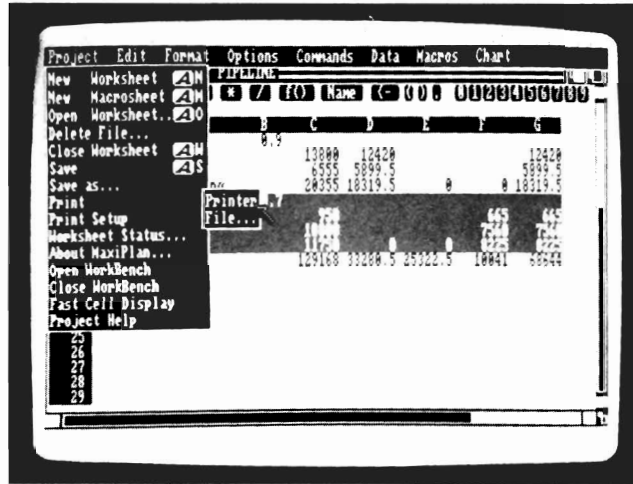
Set Margins in Preferences

You can change the left and right margins of your printed output in Preferences on the Workbench. The Workbench can be accessed from the PROJECT Menu without having to close the Worksheet for fast specifications of the margins.

Print a Range of the Worksheet

If you wish to only print a portion of the Worksheet, you must follows the steps listed as illustrated in the below.

- **highlight the desired Range to be printed with the mouse**
- **pull down the PROJECT Menu**
- **select the PRINT Menu Item**
- **select the PRINTER Submenu Item**



Before executing a PRINT command, you must make certain that the printer is hooked up and turned on.

Print the Entire Worksheet

To print the entire Worksheet, you must make certain only one Cell of the Worksheet is highlighted before you select the PRINT Menu Item on the PROJECT Menu. When one Cell is highlighted, this tells MaxiPlan to print the entire Worksheet, while selecting a Range tells MaxiPlan to print only the Range highlighted. Thus, to print the entire Worksheet

- select one Cell of the Worksheet
- pull down the PROJECT Menu
- select the PRINT Menu Item
- select the PRINTER Submenu Item.

Print to a Disk File

Printing to a Disk File sends the File in the same form as it would be sent to a printer except it is sent to a File. When it is Printed to a Disk, a Requester appears for you to key in a new name and a specific location for the File. Once a Print to FILE is executed, the file cannot be opened from within MaxiPlan. If you are printing the Worksheet to a File make sure you have created a back up copy of the Worksheet file or a duplicate copy of Worksheet created with Save As. This file can be used as part of Print Spooling, transferred to another Amiga which does not have a copy of MaxiPlan, or in some cases used with other programs such as a sideways printing program.

To Print a Worksheet as a Disk File you:

- pull down the **PROJECT Menu**
- select the **PRINT Menu Item**
- select the **FILE Submenu Item.**

This will bring up the MaxiPlan File Selector window. You can save the Worksheet as a Disk File to any disk by inserting the disk into a drive and then selecting the drive with the drive buttons at the bottom of the window, or specify the Disk Drive name. You would then key in the Path and Name for the Print Disk File, and click on the OK button to accept the name.

Once you are satisfied with the output file name and its destination, simply click on the OK button to output the Worksheet as a Disk File.

Print Spooler

To use a Print Spooler, you must follow the instructions for using the particular Print Spooler to print the Disk File. A description of the Spooler which accompanies MaxiPlan can be found under the Chapter of this manual entitled "UTILITIES DISK".

It is also possible to print the file from CLI. See your Amiga manual for directions on how to Copy to the Printer.

Chapter 14

LESSON SEVEN:

PULLING DATA FROM OTHER WORKSHEETS

Often you will want to use information that is on a different Worksheet as part of the current Worksheet. This is usually referred to as Linking Worksheets. A common example is consolidating a budget or income statement of several divisions into one Worksheet. Each division would have a separate Worksheet, and the consolidation of all the divisions would be calculated on still another Worksheet.

MaxiPlan allows you to incorporate the values in cells of your Worksheets from other Worksheets with the REFER Function. The REFER Function is a powerful MaxiPlan tool. It is accessed in the same manner as any MaxiPlan Function, via the Function Formula Button and then selecting the name REFER in the MaxiPlan Function Selector window.

The REFER Function pulls data from one particular Cell. Thus if more than one Cell is to be used, a new REFER Function must be constructed. It is not necessary to open the Worksheet containing the referenced cell. The REFER Function actually pulls data from the disk rather than from open Worksheets. If in fact the referenced Cell is altered, the updated Worksheet file must be saved to the disk with the SAVE command before the REFER function can access the changes.

In this Lesson you will learn to:

- **construct the REFER Function**
- **diagnosis errors in the REFER Function**
- **cut, copy, and paste between Worksheets**
- **Constructing the REFER function**

There are two arguments to a REFER function:

- **Worksheet PATH name**
(which consists of the Disk Name:Drawer Name/File Name)
- **Range name for the Cell**

(which consists of the Disk Name:Drawer Name/File Name)

•Range name for the Cell

When the REFER function is selected on the MaxiPlan Function Selector window, the Info line of the window displays "worksheet-name, cell-name", to indicate the arguments of the REFER function.

An example using the REFER Function to link data from two Worksheets onto a third Worksheet is available on the MaxiPlan Data Disk. On this disk you will find a directory named "Worksheets". Within that directory are three Worksheets named Division 1, Division 2 and Consolidated respectively. The Worksheet file Consolidated incorporates data from Cells in Division 1 and Division 2. It is helpful to open the Worksheet File named "Consolidated" illustrated below to follow the material described in this section of the manual.

	A	B	C	D	E	F
1	Consolidated Quarterly Results - All Divisions					
2						
3	Income	\$24,556.00	\$56,252.00	\$80,000.00		
4	Expenses	\$15,325.00	\$23,235.00	\$38,560.00		
5	Balance	\$9,231.00	\$33,017.00	\$42,240.00		
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						

An example of the REFER Function can be found in Cell C3 of the Consolidated Worksheet. The Cell Contents Display for C3 reads:

=REFER('Maxidata:Worksheets/Division 1','income')

Note that both the Worksheet PATH name and the Cell Range Name are surrounded by single quotes.

First Argument: Worksheet PATH Name

The Worksheet PATH name is the directions the Amiga Operating System uses for retrieving the Worksheet File. It consists of either the Disk Name or nothing, followed by a colon ":". The colon separates the Disk Name from the directory, or Drawer name. See

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your Amiga Reference Guide for further details concerning disk and path name conventions.

If a Directory Name is used, it is separated from the File Name by a slash '/'. The entire worksheet PATH name argument is surrounded by single quotes, and is separated from the second argument of the REFER function with a comma.

Second Argument: Cell Range Name

A Cell is specified in the REFER Function argument as a Named Range. Typically it is easier to remember the name of a Range rather than a particular Cell Address. See the section of this manual on Naming Ranges for a further explanation on how to name a Cell.

In our Consolidated Worksheet example on the MaxiPlan Data Disk, at Cell C3, the REFER Function uses the Cell Name argument 'INCOME'. This will then pull data from the one Cell Named Range in the Division 1 Worksheet called "INCOME".

Moving the Active Cell to D3 on the Consolidated Worksheet reveals that Cell is linked to the "Division 2" Worksheet, Named Cell "Income". Similarly, Cell C4 refers to the "Division 1" worksheet, Named Cell "Expenses" and Cell D4 refers to the "Division 2" Worksheet, Named Cell "Expenses". The Cells for the Balances of the two divisions are also linked to Cells in each of the division Worksheets.

Typical Errors when using REFER

As mentioned earlier, a common error is not including the correct drive name in the Worksheet PATH name. Another common error, is wrong syntax for the Worksheet PATH name such as inverting letters, misspellings, etc. Finally, it is possible that the Cell was not named or that it is under a different Range Name.

Recalculate after correcting an Error

Every time an error is corrected, MaxiPlan requires a recalculation to update references. To recalculate a reference

- click on the cell containing the REFER function
- press the F1 function key or pull down the COMMANDS Menu and select Menu Item CALCULATE and the Submenu Item NOW.

This will result in an update of that particular cell.

Cutting, Copying, and Pasting between Worksheets

MaxiPlan allows you to easily move entire Ranges of data from one Worksheet to another via the Cut, Copy, and Paste commands. Both the originating Worksheet and the receiving Worksheet must be open.

Executing a Cut, Copy, or Paste requires saving a Range of data to the Clipboard. MaxiPlan can save up to 100 Rows to the Clipboard.

To execute a Cut or Copy from one Worksheet to another:

- **open two Worksheets**
- **bring the originating Worksheet to the top of the screen**
- **select the Range to be Copied (or Cut)**
- **pull down the EDIT Menu**
- **select the COPY Menu Item**
- **click on the Front Switching Gadget to bring the receiving Worksheet to the top of the screen**
- **pull down the EDIT Menu**
- **select the PASTE Menu Item**

Finally, you should save the altered receiving Worksheet with the SAVE Menu Item on the PROJECT Menu.

Chapter 15

LESSON EIGHT: PROTECTING CELLS

When multiple users are using the same Worksheet, or when a data entry person is keying in data, it is sometimes appropriate to limit the access to certain vital portions of the Worksheet. For example, complicated Formulas could be altered or actual live data inadvertently changed if the Cells containing vital entries are not protected.

Limiting access to Cells takes two forms:

- **PROTECT:** prevents the contents of a Range of Cells from being accidentally altered
- **PASSWORD:** hides data from display until the correct Password is given. Cells subject to Password authorization are displayed with a series of dashes (-----) in the Cells. Once the Password is keyed in, the dashes are removed and the data displayed. The Cell does retain the Cell Protection feature until it is removed as described below.

Both types of limited access are available under the FORMAT Menu. It is possible to format a Cell for Protect, Password or both at the same time.

In this Lesson you will learn to:

- **Prevent accidental changes to data**
- **Hide Data**

Guard Data with Cell Protection

In order for Cell Protection to take effect, two actions must occur:

- **Cells must be formatted as PROTECTED under the FORMAT Menu**
- **Menu Item PROTECTION under the OPTIONS Menu must be selected. The Submenu lists two items: ENABLE and DISABLE. Enable turns on Cell Protection, while Disable disengages this format.**

The objective of Protection under Options is to allow global editing of a large Worksheet when several scattered areas are protected. At the conclusion of the editing session, Protection can be turned back on.

To remove Cell Protection you can

- **disable PROTECTION under the OPTION Menu**

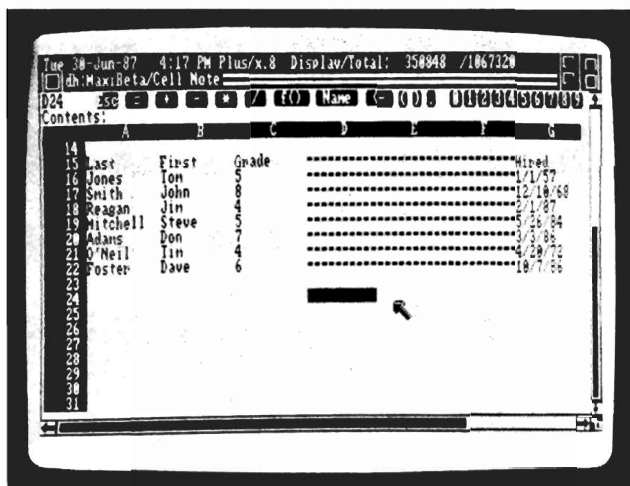
(This removes Cell Protection from all Protected Cells)

Change Protection Cell format for a particular Cell or Range by:

- **selecting the Cell or Range**
- **selecting PROTECTED Menu Item under the Format Menu**
- **selecting NO Submenu Item**

Hide Data with Password

While the purpose of Cell Protection was to prevent the accidental altering of data, formulas, or templates in Worksheets, Password is used to limit the display of certain data as well as protect it from altering. It is intended to keep data from being read by certain audiences. For example, if Personnel Data is shared, you may not want salary data available to every user of the data as shown in the Worksheet below.



Once a Cell is formatted with Password, it can not be removed. Every time the Worksheet is saved and reopened, the user will have to key in the Password in order to view or modify all of the Password protected Cells.

Only one Password can be specified per Worksheet, and it cannot be altered. If the Password becomes known, then you must Save the Worksheet under a new File Name and specify a new Password.

To Format a Cell or Range with Password:

- highlight the Cell or Range
- pull down the FORMAT Menu
- select the PASSWORD Menu Item
- select Submenu Item Yes
- save the Worksheet to accept Password formatting

Next the Password must be defined. To stipulate the Password:

- pull down the OPTIONS Menu
- select SPECIFY PASSWORD
- key in Password in the Requester
- click on the OK button
- save the Worksheet to put Password in place

To use the Password to view data in a Range formatted with Password, follows the steps below.

- highlight the Range
- pull down the **OPTIONS** Menu
- select **SPECIFY PASSWORD**
- key in the Password in the Requester
- click on the **OK** button to accept the entry

The dashes will be remove from all of the Cells formatted with Password. Now the user of the Worksheet can read all of the data. Cells formatted with Password will remain Cell Protected if Protection has been enabled. To alter any data in these Cells, the user will have to either remove the global Protection under the **OPTIONS** Menu or reformat individual Cells or Ranges of Cells.

Chapter 16

LESSON NINE:

CHARTS: VISUAL DISPLAY OF DATA

Certain types of analyses lend themselves to graphic representation. For example, tracking a trend over time with a bar or Line Chart, or describing relative contribution with a Pie Chart. The visual image of the Chart tells the conclusion of the data faster than reading the actual data entries.

MaxiPlan has taken the Amiga's strong graphic capabilities and adapted them to produce outstanding visuals for business applications. Charts produced with MaxiPlan can be outputted to the screen, graphics plotters, dot matrix printers, or laser printers. In addition, if you wish to further enhance the Charts with a Paint Program, MaxiPlan will export the Chart in IFF File format.

Charts can be specified as Column or Row oriented with a single mouse click. MaxiPlan can incorporate data from a Range which includes any number of Rows and Columns. Only memory size and practicality limit the amount of data that can be charted.

In this Lesson you will learn to:

- Specify Charts including styling, data range input, titles, labels, and scaling
- How to use the options available for Charts
- Save up to 8 Charts per worksheet
- Print your Charts
- Export of Charts in IFF File Format
- How to use two-way dynamic links between data and Charts for instant updating of Charts and modification of data via manipulation of the Chart

Charts Menu

The Chart Menu can be found on the extreme right hand side of the Menu Bar. From this Menu you can create a new Chart, alter an existing Chart, and remove a Chart. The Chart Menu is comprised of the following Menu Items:

Draw
line
Bar
3D Bar
Stk Bar
Area
Pie
3D Pie
Step
X-Y
Hi-Low
3D Pie
Remove
Chart Help

Both Draw and Remove have a Submenu listing the numbers of the 8 Charts. When a Chart is specified, the next open Chart Number is assigned. After the Chart is saved, the used Chart number will appear with a check next to the number. To remove a Chart, simply click on the particular number of the Chart to be deleted. You are then free to respecify the Chart number.

Create a MaxiPlan Chart

Before beginning you must open the Worksheet containing your data, which in our example is the File Name Chart Data.

MaxiPlan will try to make some educated guess as to how to Draw a particular Chart Style based on the data you have selected to be incorporated in the Chart. In most cases, MaxiPlan's design choices will reflect your intentions, but you are also given the option to alter many of the Chart parameters in the Specify Window. Details of the available options are given further into this Chapter.

To quickly create your first Chart simply,

- highlight the Range A3:D5

- pull down the Chart Menu
- select one of the Chart Styles, we suggest Bar

MaxiPlan will now draw the Chart in a window. Observe that MaxiPlan has decided that the Bar Chart is to be Column oriented. That is the Columnar data in the Worksheet is depicted in clusters of Bars along the X-axis. The extreme data points of the Rows of the Worksheet determined the range of the Y-axis.

Labels for the X-axis and the Legend are automatically obtained from the Labels parallel to the highlighted data Range for the Chart in the Worksheet. For example:

A	B	C	D	E	
3		1987 Sales			-Label
4					
5	Jan	Jan	Feb	Feb	Mar ←Label
6	1-15	16-31	1-15	16-31	1-15 ←Label
7	Nuts 20	30	40	30	50 ←Data
8	Bolts 25	35	45	35	65 ←Data

Labels

Should these default Chart parameter selections not be suitable, you can easily alter them with the Specify Menu Item on the Chart Control Menu for the Chart Drawing window.

Resize the Chart

The Chart Drawing window has most of the amenities of any Amiga window including a Size Gadget in the lower right hand corner. To enlarge the Chart, simply click and drag on the Size Gadget. The Chart can be made smaller via the same method.

Customize the Chart with SPECIFY

The Chart Drawing window has four Menus available, Chart Control, Chart Type, and Options.

Chart Control:

manages the general specifications for a Chart, and external activities such as printing, capturing, palette colors, etc.

Chart Type:

allows the user to select a different Chart Style

Options:

lists options peculiar to a particular Chart Style.

Colors:

gives you control over the colors the Chart is rendered in.

- Pull down the CHART CONTROL Menu
- select the SPECIFY Menu Item

This will bring up the Chart Requester.

Chart Requester allows you to change the parameters governing the Chart. Along the right hand side is a series of check boxes. Selecting the box instructs MaxiPlan to display the Text String keyed in to the left. MaxiPlan will accept a two line Title up to 40 characters long in each line. A Text String can be keyed in for both the X and Y axis. MaxiPlan will automatically display Labels from the Worksheet and Legend Titles is the last two boxes are checked off.

Column vs Row Orientation

An important component of the Chart Requester is the Column versus Row orientation of the Chart. To specify the orientation, click on either the box labeled COL or ROW in the center of the Chart Requester.

A Column oriented Chart can pick and choose any column in the Worksheet or Range of Columns for inclusion in the Chart's data. The columns need not be next to each other, nor do the Ranges need to be contiguous.

The following are valid Columns specifications:

C,D,E,F
C,D,F:H,K
N:P,U:V
A:G

If you are specifying a set of contiguous Columns it is best to specify them as a Range. Thus

C:E is preferable to C,D,E

In a Column oriented Chart, the Rows used must be specified as a Range. In our example, the Range shown in the Chart Requester should be 3:5, since we highlighted the Range A3:D5.

You will note that when you click on the COL orientation box, the display above the Range display changes to COL. If a Row orientation is selected this becomes ROW.

Just as you can pick any Columns to be charted in a Column oriented Chart, you can pick any Row or Ranges of Rows in a Row oriented Chart. Likewise, the Columns used in a Row oriented Chart must be specified as a Range. Their specification will appear in the Range display.

Since we initially highlighted the Range A3:D5 in the Chart Data Worksheet, the COL display shows A:D and the Range display shows 3:5. By placing the Pointer in either display, these can be edited to include different Columns and different Rows.

Chart Scaling

The last set of displays delineates the scaling of the X and Y axes. Based on the highlighted Range in the Worksheet, MaxiPlan has pre-inserted a scaling range. By placing the Pointer in any of the displays, they can be edited and a different scale used.

Chart Color Changes

On the CHART CONTROL window is the Palette Menu Item. This brings up the typical three sliding bar Color Requester. Use the Pointer to adjust the Colors to any desired combination. When the right color mix is achieved, click on the OK button. Restore will undo any changes and Cancel will undo and return you to the Chart Drawing window.

Save the Chart

Once you are satisfied with the specifications of the Chart, you must click on the Ok button of the Requester to accept the parameter changes. Clicking on Restore will retain all previous data from before your editing. Cancel closes keeping the original settings.

To return to the Worksheet window, click on the Close Gadget in the Chart Drawing window.

Change Chart Type

Chart Type can be chosen from the CHART Menu on the Worksheet. If the Chart Type selected is not to your liking, a different Chart Type can be chosen from the CHART TYPE Menu in the Chart Drawing window.

As an exercise, select a different Chart Type such as Line or Area in the Chart Drawing window.

- **pull down the CHART TYPE Menu**
- **select either the LINE or AREA Menu Item**

MaxiPlan will now redraw the Chart.

To specify another Chart Type, repeat the above process.

Print a Chart

MaxiPlan can output Charts to a variety of printers such as dot matrix, plotters, or laser printers. Specification of the Printer is done in the Workbench under the Preferences Drawer. See your Amiga Manual and the Chapter of this manual entitled "PRINTING AND DISK FILE OUTPUT".

To actually print your Bar Chart of the range A3:D5 of the Chart Data Worksheet you must,

- **make certain the printer is turned on**
- **pull down the CHART CONTROL Menu**
- **select the PRINT Menu Item**

The Chart will now be output to the printer.

Capture a Chart

Another Menu Item on the Chart Control window is CAPTURE. This Menu Item converts the Chart to an IFF format for export to either a paint program or some other type of application.

When you select CAPTURE, you will be presented with a Requester to key in a name for the Chart File. Choose a name that will convey the contents of the Chart.

After it is saved as an IFF file, you will be able to open it from within a Paint program, word processing program, or any other application.

3D Chart Rotation

3D Pie Charts rotate around the (horizontal) X-axis, while 3D Bar Charts rotate 90 degrees about both the vertical and horizontal axes.

To rotate a Chart, click on the Chart with the Select (left) mouse button and drag it to a new angle of orientation on the screen. When you release the mouse button, the Chart will be redrawn.

Draw a Chart

Every Chart specified is assigned a Chart number. On the CHART Menu on the Worksheet are two Menu Items listing the 8 Chart numbers, DRAW and REMOVE.

After the Chart has been fully specified it can be redrawn at any time by simply selecting the DRAW Menu Item and selecting the number of the desired Chart.

Remove a Chart

To remove a Chart, pull down the CHART Menu in the Worksheet window and select the REMOVE Menu Item. The Submenu lists the 8 Chart numbers. Select the Chart number to be removed.

Chart Options

Each particular Chart style has an associated Options Menu in the Chart Drawing window. The options for each particular Chart style vary. What follows is a description of what each option does, and how it is used. This section is followed by further details on each particular Chart style and a listing of the options and special features for the Chart style.

Options:

Axis - You can elect to have the axis displayed or not displayed. Submenus give you control over each of the axis.

Edges - These are the boundaries around bars, pie slices, and areas. You can elect to display them for a crisper looking Chart, or leave them off if that is a more effective depiction of your data.

Grid - Grid lines are an extension of the axis scaling. You can elect to display either the X-axis grid only, the Y-axis grid only, or both grids. In the case of a 3D Bar chart, it is also possible to display the third axis, Z as well.

0,0 Break - This option is only used in X-Y Charts (scatter). It causes a break in the line that is being rendered. If this option is turned off and a coordinate of (0,0) is in the data it will be connected into the displayed line.

Scale - The actual numbers that appear along the left side of a Chart. With X-Y (scatter) Charts, there is a scale along the bottom as well.

Smart Labels - When Smart Labels is on, MaxiPlan will attempt to calculate the best spacing for displaying labels so that they do not overlap when the Chart Drawing window is of a small size. MaxiPlan will select which labels to print. Typically it will select every other label. If Smart Labels is turned off, if there is not enough room in the window the labels will be displayed on top of each other.

Symbols - These are small graphic objects that indicate the position of a data point on a Chart. The actual point is at the center of the symbol. Symbols are available in Line and Scatter Chart styles.

3 Variables - This option is found only in Hi-Lo charts. It tells MaxiPlan how to interpret the data in the Worksheet. If this option is on, MaxiPlan will be plotting with 3 Variables. In other words data will be extracted from the Worksheet in groupings of three, that is variable 1, variable 2, variable 3, variable 1, variable 2, etc. If this option is off, MaxiPlan will plot with two variables.

Ticks - These are the small lines or notches that appear attached to the axis. You can elect to either display them or leave the axis unmarked.

Special Features:

Point & Shoot - MaxiPlan allows you to see the numbers behind the picture. For example, a Pie Chart illustrates percentages. To see the total value in a particular slice you can point and shoot at the slice and the value of the data for the slice will be displayed in the upper right hand corner of the Chart Drawing window.

In general, for Chart styles that have this feature, by selecting a portion of the Chart with the left mouse button, the data will be displayed in the Chart Drawing window. Currently this feature is available on: Bar, Pie, and Line charts.

To view data on a Line Chart select the Symbol at the juncture points along a line in the Chart.

Point & Modify - When a Chart has been specified as linked, it may be possible to alter the data on the Worksheet by changing the position of a component of the Chart. This feature is available on: Bar

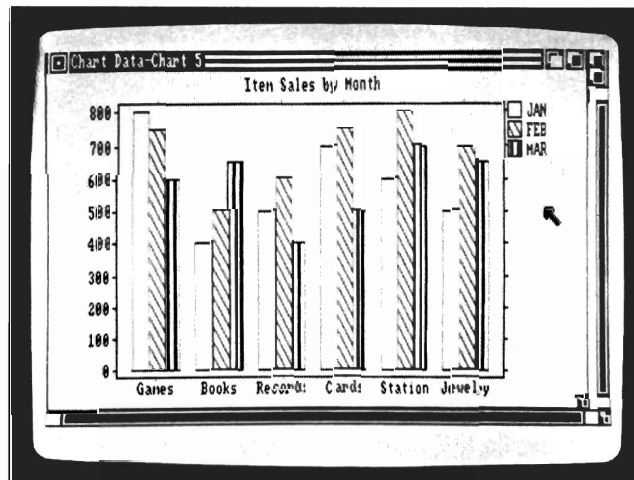
Point & Modify will alter a constant or the first Cell reference in a formula. Note: the formula must not contain any nested statements (parentheses) in order for Point & Modify to work. For example:

=A1 + A3 the Cell A1 would be changed and while the Cell A3 will keep its current value. If there is a formula at A1, it will not be changed. If you want to alter the value at cell A3, the formula must be rewritten as: **=A3 + A1**.

=213 This will not change since it is not a constant, and there is no Cell reference in the formula.

213 Since this is a constant, when the bar is repositioned the value will change.

Bar Charts



Overview:

Bar charts are designed to organize categories of data in groupings. For example, all the sources of revenue grouped together by month. Each category is shown in a different color, but is the same color in each grouping. Thus at a glance the Bar chart shows both relative contribution of a revenue source to a particular month's sales as well as its performance over several months.

MaxiPlan determines the Row or Column orientation based on the size of the Range selected for the Bar chart. You do have the option to override MaxiPlan's default in the Specifications Menu on the Chart Drawing window. Bar charts will have a legend for each type of bar color, labels for each axis and titles.

Options:

Axis X,Y
Ticks X,Y
Scale Y
Edges
Smart Labels

each of these options is described in the OPTIONS section of this chapter.

Additional Features:

Bar charts have the "point & shoot" feature. By pointing at any bar of the chart and pressing the left mouse button the value of the bar will be displayed in the right side of Chart Drawing window. The precision of the displayed value is dependent on the numeric format of the Cell in the Worksheet. If you need more or less precision, you must reformat the number of decimals for the Cell in the Worksheet.

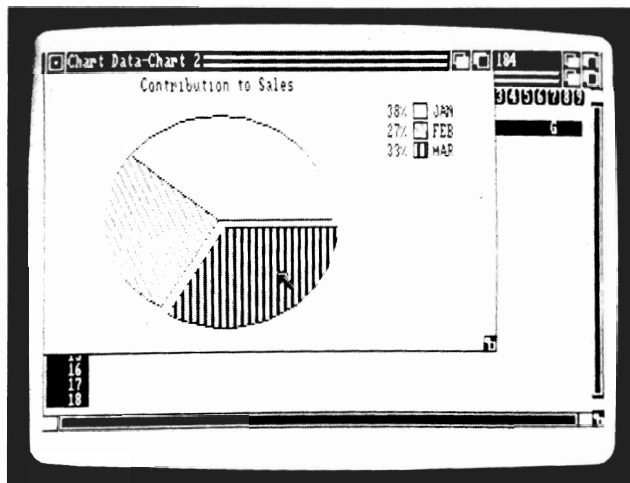
Bar charts also have the "point & modify" feature. This feature is found on both Bar charts and Line charts. With this feature by changing the position of the bar, you can change the data or formulas in the Cell on the Worksheet.

To reposition the bar:

- press the ALT key
- while holding down the ALT key, click on the bar with the Select (left) mouse button
- move the bar to a new position
- release the ALT key and the mouse button

The bar will now be at the new position.

Pie Charts



Overview:

Pie charts are used to represent relative contribution to the total of the data. The MaxiPlan Pie chart not only depicts the relative contribution by the size of the slices, but also displays a legend listing the percentages next to each slice color.

MaxiPlan's Pie chart defaults to a Column orientation. When one Column is selected as the data, each Cell in the Column will be charted as a separate slice. If more than one Column is selected in a Range, MaxiPlan will total the Cells across a Row and use that total as the relative contribution for that set of data. The labels for the legends are extracted from label Cells in a Column parallel to the selected Range.

Options:

Edges

Special Features:

MaxiPlan Pie charts can be exploded, that is one slice moved out from the pie to show emphasis on that particular set of data.

To explode a Pie chart:

- press the **CONTROL** key
- while holding down the **CONTROL** key, point at the pie slice you wish to have exploded
- select the slice with the left mouse button
- release the **CONTROL** key and the mouse button

The slice will now be displayed in the new position.

Any of the first 32 slices of a Pie can be exploded. To unexplode a slice of the Pie chart, use the same key sequence.

Pie chart also have the "point & shoot" feature. If you wish to see the associated value for a slice, point at the slice and depress the left mouse button. The value for the slice will be displayed in the top right hand side of the Chart Drawing window. The precision of the display will depend on the precision of the data in the Worksheet Cell. If you would like to see more or less decimals, the Cell will have to be reformatted.

Line Chart

Line Charts are best to show a trend over a period of time. MaxiPlan will automatically rescale the axis based on the extreme most data included. Thus if one data point is entirely out of the range of the remainder of the data, the other lines will appear close together and it will be difficult to distinguish them from each other. Thus Line charts are best for data which is within a narrow range.

Options:

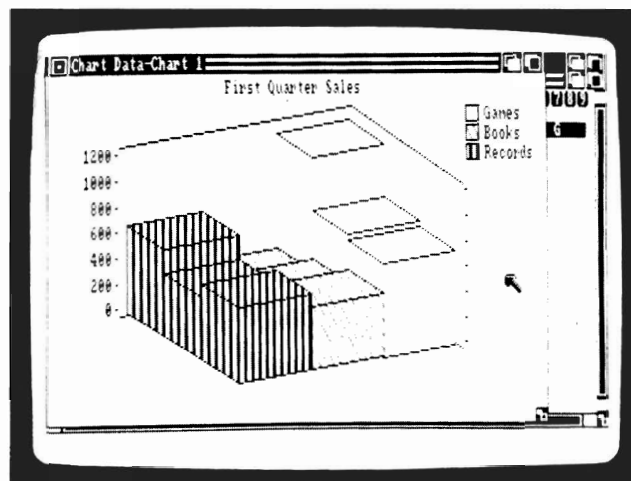
Axis **X,Y**
Ticks **X,Y**
Grid **X,Y**
Scale **Y**
Symbols
Lines
Smart Labels

Each of these options in described in the **OPTIONS** section of this chapter.

Additional features:

Line charts have the "Point & Shoot" feature. By pointing at a data point on the line with the left mouse button, the data value will be displayed on the top right hand section of the window. The precision of the display will depend the format of the Cell in the Worksheet. If you would like to change the precision, you must reformat the Cell in the Worksheet.

"Point & Modify" is a feature of Line charts as well. By selecting a data point on the line while pressing the ALT key, you can then move the line and change the underlining data in the Worksheet. This feature will change a constant in a Cell or the first Cell reference in a formula. See the above discussion on Point & Modify for further details.

3D Bar Charts

3D Bar charts do a good job of depicting several data points. Rather than aggregating and show all the data in one bar as is done with regular Bar charts, each individual data point can be shown. If too many data points are included, they will hide the other data and limit the communication ability of the Chart. Thus it is best to only display a limited number of data points on a 3D Bar chart.

Options:

Axis	X,Y,Z
Ticks	X,Y,Z
Grid	X,Y,Z
Scale	Y

Edges

Each of these options is described above in the OPTIONS section of this chapter.

•Additional features:

It may be desirable to view the 3D Bar chart from another angle in order to see any hidden data points. This is called Chart rotation. To change the angle (known as the Pitch and Yaw)

- hold down the SHIFT key and point at some interior point inside the 3D Bar chart
- while holding down the SHIFT key, press the left mouse button

The window will clear and only the 3D axes will be displayed.

To change the angle, you move the Pointer. As you move the Pointer you will see the relative position of the axes change. Once you have reached a satisfactory angle, release the mouse button and the SHIFT key.

Once the 3D Bar chart is redrawn, you can repeat the process if you want to change it further.

Area Charts

Overview:

Area charts are similar to Stacked Bar charts. They are a series of layers which contribute to the whole. The top of each layer represents the sum of the layers below it, while the thickness of the layer represents the relative contribution of that piece of data.

If the angle of any one layer, or the relative size of one layer to the rest becomes too extreme, it may be best to switch to another Chart style such as Stacked Bar.

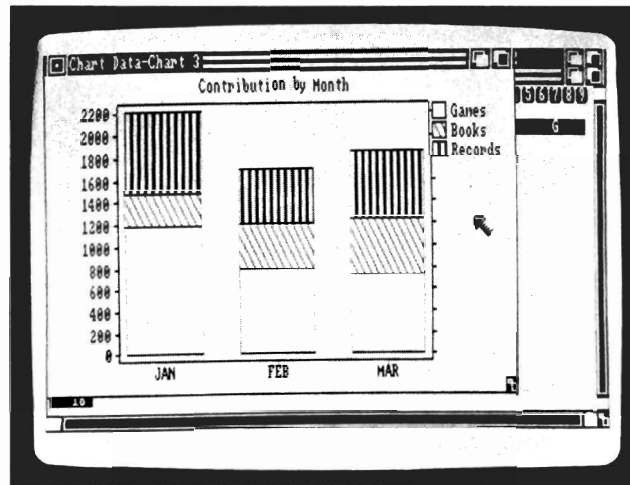
Options:

Axis	X,Y
Ticks	X,Y
Grid	X,Y
Scale	Y
Edges	

Smart Labels

Each of these options are discussed in the OPTIONS section of this chapter.

Stacked Bar Charts



Overview:

Stacked Bar charts are similar to Area charts. Each section of the bar represents the value of the data, while the top of the layer represents the total of each of the layers below. Since the Stacked bar does not have angles as does an Area chart, it is sometimes does a better job of communicating visually the data.

Options:

Axis X,Y
Ticks X,Y
Grid X,Y
Scale Y
Edges
Smart Labels

Each of these options is described in the OPTIONS section of this chapter.

Step Charts

Overview:

Step charts are identical to line charts with one small difference, data points are connected with steps rather than a straight line. Step chart is best used when the data is incremented in larger amounts rather than small changes.

For example: If you were to use the Step chart to depict your bank account balance it would be charted in a jumpy or step fashion since you pay your bills in large aggregations of dollars and not one penny at a time.

Options:

Axis	X,Y
Ticks	X,Y
Grid	X,Y
Scale	Y
Smart Labels	

X-Y Charts

Overview:

X-Y Charts allow the most flexibility in rendering your data. With X-Y charts, the X axis is automatically calculated, this is different than any of the other charts. With X-Y every data point is shown in the Range selected in the Worksheet. X-Y charts can even be used to draw complex shapes, 3 dimensional objects, text, or even pictures. When MaxiPlan extracts data for an X-Y chart comes out of the Worksheet by first deciding if the data is Column or Row oriented. To do this, it looks at the data and determines if there is more Rows or more Columns. If there are more Rows, then it is Column oriented. While if there are more Columns, it is Row oriented.

For example: A range of 3 Columns wide and 100 Rows is Column oriented. This is because when the data is laid out each Column is bigger than any Row.

Once MaxiPlan has determined the orientation, it takes the first Column if it has decided the data is Column oriented or the first Row if it determines it is Row oriented and plots that as the X axis. The remaining Columns become the Y values. In the 3 Column by 100 Row Range, the last two Columns would be the Y values.

It may be desirable to have several lines that are the same color but not connected. To do this turn on the 0,0 break option in the OPTIONS Menu. This tells MaxiPlan to stop drawing a line whenever it finds a coordinate of (0,0) in the data, MaxiPlan will then con-

tinue drawing the line at the next coordinate thereby leaving a gap between the two line segments.

Hi-Lo Charts

Overview:

Hi-Lo charts are used primarily to depict financial data. Such as the High, Low, and Closing price of a stock. Hi-Lo charts can be used for scientific charting as well.

The data for a Hi-Lo chart is extracted from the Worksheet in a unique manner. Hi-Lo charts are typically Column oriented. When the 3 Variables options is selected, it assumes the order of the data in the Columns is Hi, Lo, and Close in across each Row. Thus the first Column is for Hi data, the second for Lo data, and the third for the Close data.

You may elect to only show two data points, that is the Hi and the Lo. If that is the case, the 3 Variables option should be turned off. You may also have to remove the Column in the Chart Specifications window as well.

Chapter 17

LESSON TEN: AUDITING WORKSHEETS

When Worksheets get awkwardly big, MaxiPlan has some unique features to help keep track of calculations and the accuracy of data entries.

Preciseness of Worksheet analysis is dependent on the accuracy of the components of the analysis. The actual Formulas themselves can become very confusing, especially when they refer to multiple Cells. To aid the user, auditing capabilities have been incorporated in MaxiPlan. Auditing features include:

- **alternatively displaying either the actual Formula or its value.**
- **attaching a Cell note to a Cell to explain the contents of the Cell.**
These notes may be either written, spoken, or both.
- **reciting data as it is entered.**
- **recite data later as a check against source documents.**

In this Lesson you will learn to:

- **Alternate between displaying Values and Formulas**
- **Build Cell Notes**
- **Recite Data Entries**
- **Display Formulas vs Values**

To show the Formulas of a Worksheet, rather than their values, pull down the **OPTIONS** Menu and select the Menu Item **SHOW** and then select the Submenu Item **FORMULAS**.

Any Cell defined by a Formula will now display the Formula rather than the result of the formula, its value. If the Cell width is too small, the Columns may need to be widened to fully display the Formulas.

The dependent relationship between the Cells is readily seen when all the Formulas are displayed at once, rather than when a specific Cell is selected. To see the value for a Cell, just click on the Cell and it will be shown in the Cell Contents Display at the top left hand section of the window.

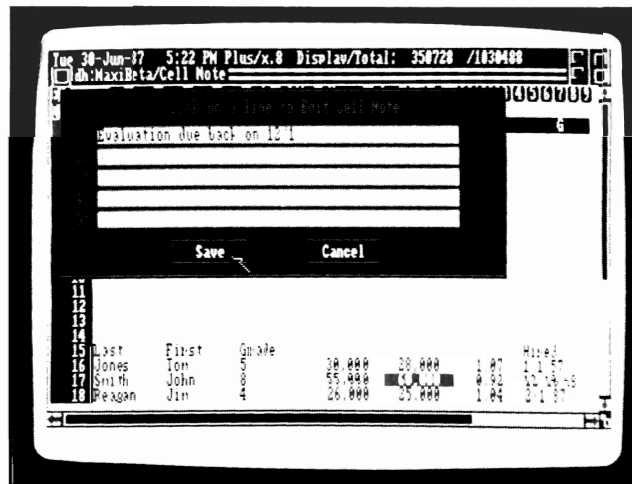
To return to the VALUE display mode, simply pull down the OPTIONS Menu, select Menu Item SHOW and Submenu Item VALUES.

Build Cell Notes

A Cell Note can either explain the contents of a Cell, direct the user as to what are his next steps, or convey any other appropriate information. The Cell Note for a particular Cell is accessed by:

- clicking on the Cell
- pressing the HELP Key

Cell Notes can be either spoken through speakers attached to the Amiga, displayed on the screen, or both. When they are displayed, a Requester appears with an OK button. The user clicks on the OK button after reading the note when ready to proceed. Below is an illustration of the display of a Cell Note.



To define a Cell Note:

- click on the Cell
- pull down the COMMANDS Menu
- select the Menu Item CELL NOTE
- select the Submenu Item ADD OR CHANGE

A Requester will appear for keying in the text of the message for the Cell Note. A Cell Note can be up to 5 lines of 50 characters each for a total of 250 characters.

Once you have keyed in your message, you must click on the SAVE button to attach the message to the Cell. Clicking on CANCEL will keep the original Cell Note in tact if one is associated with the Cell.

To remove a Cell Note:

- click on the Cell
 - pull down the COMMANDS Menu
 - select the Menu Item CELL NOTE
- select the Submenu Item ERASE**

The Cell Note output is determined through the CELL NOTE OUTPUT Menu Item of the OPTIONS Menu. Under this Menu Item is a Submenu of four items:

Off
Text Only
Speech Only
Text and Speech

The default option is Text Only, or written display. To hear the Cell Note through the speakers, either Speech Only or Text and Speech have to be selected.

Recite Data as Entered

MaxiPlan has the capability to recite data through the speakers as it is entered. Entries are repeated character by character. Thus 710 rather than being recited as "seven hundred and ten" becomes "seven, one, zero".

To access recitation of data as entered:

- pull down the OPTIONS Menu

- select KEYBOARD ECHO Menu Item**
- select ON Submenu Item**

Any data keyed in will now be recited character by character including letters and special characters. For example: * is "times" and / is "divided by".

To disable reciting data, select KEYBOARD ECHO under the OPTIONS Menu and select OFF on the Submenu.

Recite Existing Data

MaxiPlan will recite aloud a Column of numbers as you compare then against the source document for accuracy. Both text and numbers can be recited. The output differs from the Keyboard Echo option. The whole word is spoken, not the individual characters. Thus 710 would be read as "seven hundred ten". To recite existing data:

- first select the Range of Data**
- pull down the COMMANDS Menu**
- select the READ RANGE Menu Item**
- select from the Submenu Item either NO CELL NAMES or SAY CELL NAMES**

You have the choice of either having the Cell Address recited before the data is recited, or MaxiPlan can skip the formalities and just recite the data. One of the two Submenu items must be selected to execute the Read Range command.

Chapter 18

LESSON ELEVEN:

MaxiPlan UTILITIES DATA DISK

On the MaxiPlan Utilities/Data disk you will find the following directories. Not all may contain files, but are being reserved for future added information.

Database Workseets: Sample Database Workseets

Macro Workseets (MaxiPlan Plus only): Sample Macro Workseets

Manual Update: Contains information about MaxiPlan wic evolved after te manual went to press.

Workseets: Sample MaxiPlan Workseets

Read Me First: Critical Information

How To: Furter embellishments of to items already in te manual

Templates: Detailed Workseets for solving specific business problems

Public Domain: contains two public domain Amiga programs for your convenience:

- DIRUTIL:** for copying, displaying, printing, deleting of Amiga Disks
- FixObject:** for fixing up files transferred XMODEM.

See the "About Public Domain" information file on the Utilities/Data Disk for an explanation concerning the two public domain programs.

MaxiPlan Utilities: Contains te following Utility programs:

- MaxiMerge:** for outputting MaxiPlan Data Files to word processing programs

MaxiMerge: How to Export MaxiPlan Data for Mail Merge LESSON ELEVEN:

- **From 123:** for importing Lotus 1-2-3 files into a MaxiPlan Worksheet
- **MaxiSet:** for customizing the "sound" of the Amiga Voice
- **Spool:** a print spooler to print files in the background of another file.
See "About Spool" information file on the Utilities/Data Disk for background.

Each drawer or directory is accessed by selecting it with the Select (left) mouse button. To open any file in any of the drawers you again click on the file icon or name with the Select (left) mouse button.

In this lesson you will learn to:

- **create Mail Merge files with the MaxiMerge Utility**
- **import Lotus 1-2-3 files**
- **adjust sound of MaxiPlan's voice with MaxiSet**

MaxiMerge: How to Export MaxiPlan Data for Mail Merge

A common application of database records is to merge information into a form letter or to create mail labels. A MaxiPlan database can be exported to any form letter or label template "saved as a text" file. The MaxiPlan database itself must also be "saved as text". MaxiMerge is a utility which combines two files and produces the finished output to either a printer or a disk file.

Creating the Letter or Label Form

The form letter or label template must include any field names from the database file in angled brackets < > at the proper location in the letter or on the label. Field names are case sensitive, i.e. Name does not equate to name. Be sure to carefully check spelling. Below is an example form letter.

LESSON ELEVEN: MaxiMerge: How to Export MaxiPlan Data for Mail Merge

The Form File created by ED, TextCraft, EMACS, or other Text Editor

< Date >

< First Name > < Last Name >

< Street >

< City >, < ST > < Zip >

Dear < Salutation > < Last Name > ,

Enclosed you will find literature about our new products and services. Thank you for your support. You will hear from one of our representatives in the near future.

Best Regards,

*Adam Smith
President*

Specifying the Database Merge File

Continuing the example of the above form letter, we now have to specify the database file to be merged into the form letter above.

Each field name will appear at the head of a Column in the Range specified as a database in the Worksheet and the appropriate information for each record is keyed into the Rows of the database. Thus the following would appear in the Range specified as a database in the Worksheet.

Last Name	First Name	Salutation	Street	City	ST	Zip
Jones	Robert	Rev.	123 Main	Alta	UT	80765
Dickson	Tom	Mr.	4 Kings	Troy	NY	10090
Mason	Barbara	Ms.	16 Valley	Brea	CA	97234

This database Range would then be saved as text using the SAVE DATA AS TEXT Menu Item in the DATA Menu. This converts the database into a tabular delineated format. You will also be asked to give this name which describes its contents and lets you know it is a text file, such as "Customers.text".

MaxiMerge: How to Export MaxiPlan Data for Mail Merge LESSON ELEVEN:

When a MaxiPlan text file is displayed on the screen, the first line is the Field names, and each successive line is the Row or Record of the database with the **Field of the Record separated by a dot "." to designated a tab.** The above database as a text file would be displayed:

Last Name.First Name.Salutation.Street.City.ST.Zip	---Field Names
Jones.Robert.Rev"."123 Main.Alta.UT.80765	---First Record
Dickson.Tom.Mr"."4 Kings.Troy.NY.10090	---Second Record
Mason.Barbara.Ms"."16 Valley.Brea.CA.97234	---Third Record

Merging the Form File and Data File

Once the Form File and the Data File have been defined and saved as text, you are ready to execute their merging. The MaxiMerge utility window has three Menus available:

Project: for specifying the form file name, the merge file name, and actually executing their merge

Form Type: for defining either letter or label output

Output: for specifying either a printer or a disk file output destination

Under the Project Menu are four Menu Item. Two bring up file selection windows:

- CHOOSE FORM** for the form file
- CHOOSE TEXT DATABASE** for the database file
- GO** executes the merge of the two files, while **QUIT** exits from the MaxiMerge Utility.

Choosing the Merge Files

The file selector window for the Form File is displayed below. On the right is the list of drives. Click on a particular drive and text files available in the drive will be displayed in the body of window. Once the drive is selected, click on the SHOW FILES button. This will bring up the display of available files on the drive. To the left of each name is a code to designate if the name is a file or a drawer which will contain other files. Should you wish to see the files in a drawer, simple click on the drawer name.

A Scroll Bar just to the right of the names is available to quickly browse, through all of the file names. Once the desired file is found, click on the OK button to accept the file.

Executing

To perform the actual merge once both the form file and matching database file have been chosen, pull down the PROJECT Menu in the MaxiMerge Utility window and select GO Menu Item. The output destination is based on the selection in the OUTPUT Menu.

From 123: How to Import a Lotus 1-2-3 File

The MaxiPlan Utility From 123 will convert a Lotus 1-2-3 format file into a MaxiPlan file. You must first move the data file from a Lotus 1-2-3 disk onto an Amiga format disk.

This can be done a variety of methods. One of the simplest is via a modem program. You must consult the manual of your modem software for details on how to work with your software.

There are 5 1/4" disk drives which can be plugged into the Amiga. There are special programs which will allow conversion of MS-DOS formatted files. It is advisable to consult your Amiga salesman about the specifications for such peripherals and programs.

Note: From 123 requires that the 123 file must end in ".WKS" to designate it is a Lotus 1-2-3 file.

To Convert a Lotus File

- Double Click on the FROM 123 Icon
- Pull Down the PROJECT Menu
- Select the CONVERT A 123(tm) FILE Menu Item

This will bring up a File Selector window similar to that available under MailMerge. Please review the above discussion for details on the File Selector window.

- Select the desired file ending in .WKS
- Click on the OK button

The name of the converted file will now end in .PLAN instead of .WKS, and it will appear on the same drive as the .WKS file.

MaxiSet: How to Define MaxiPlan's Voice

After opening the MaxiSet Icon, you will be presented with the MaxiSet window. This contains all of the slide bars for adjusting the "sound" of the Amiga Voice.

The Amiga actually reads a phonetic translation of a text entry for output to the speakers. To test the Amiga Voice, you must create sample text for input. The MaxiSet window provides a box to key in the text for the test sample voice output.

- **Key in your sample, such as: "This is Amiga speaking."**

- **Click on the button marked TRANSLATE**

This will translate the English text into Phonetic Representation in the bottom box.

To hear the sample:

- **Click on the SPEAK button**

Now you will want to adjust the sound to your own liking with the six available variables:

Robot sounding vs Human sounding:

This is defined by the Face Icon in top center of the window. When it has two square eyes and one square for a mouth, the voice sounds more mechanical, and all words are spoken with equal emphasis. The Human Option is depicted by a face with a nose in profile as well as a line for a mouth. This option gives the voice inflection, that is some words are spoken with greater emphasis. Toggle between the two options to hear the difference.

Malen vs Female voice:

The Male Voice is generally lower pitched while the Female Voice is higher pitched. This is accessed by clicking on either the Female symbol or Male symbol in the center of the window.

Sample Frequency:

This slide bar dictates the distinctiveness of the voice, how much "gravel" or extraneous noise.

Pitch:

This slide bar dictates the note range of the voice.

That is: do,re,me,fa,...etc.

Rate:

This slide bar dictates how fast the words are spoken. That is, at 45 wpm vs 78 wpm.

Volume:

This slide bar dictates the loudness of the voice.

It is possible to display a Talking Face over the Worksheet whenever the Amiga Voice is speaking in MaxiPlan. Whenever reading Ranges or Speaking Cell Notes the Face will be displayed with moving lips at your election. To turn the display of the Face on or off, simply click on the icon above the Male or Female Symbol icons. The Face will appear on Worksheets when the Face is shown to the right of the MaxiSet window.

Chapter 19

LESSON 12:

ADVANCED SAMPLE WORKSHEET

For readers who are familiar with spreadsheet programs, the following is a command by command illustration building a Worksheet using MaxiPlan. The description demands some prior experience with spreadsheets. It is intended to demonstrate the ease of using MaxiPlan. The finished Worksheet can be found on the data disk under the name JANUARY PIPELINE as well as illustrated on the facing page.

In this Lesson you will learn to:

- **Integrate all of the previous 11 lessons into a typical MaxiPlan Worksheet session**
- **Open the Finished Sample File**

To view the finished Worksheet, simply

- **open the MaxiPlan drawer**
- **open the MaxiPlan program**
- **pull down the Control Menu**
- **select Menu Item Open Worksheet with the Menu (right) mouse button**
- **click on desired drive button with the Select (left) mouse button**
- **click on the center of the window to display list of file names with the Select (left) mouse button**
- **click on file name JANUARY PIPELINE with the Select (left) mouse button**

Create a New Worksheet to Follow the Tutorial

The following is a description of how the JANUARY PIPELINE Worksheet was created. If you wish to enter the commands described to create a duplicate Worksheet, you should first close the JANUARY PIPELINE Worksheet by pulling down the Project Menu (the first

Menu from the left) with the Menu (right) mouse button then choose the Menu Item "Close Worksheet" still using the Menu (right) mouse button. Then access the Menu Item "New Worksheet" from the Project Menu in the same manner.

After you have created the JANUARY PIPELINE Worksheet by following this brief tutorial, you will be asked to delete your sample Worksheet. Whenever you wish to delete your Worksheet, you pull down the Project Menu, and choose "Delete Worksheet". This will bring up the display of a Pop Up window called "MaxiPlan File Selector". Click on the desired file name with the Select (left) mouse button. A Requester will appear asking you to confirm the deletion by clicking on the OK button again with the Select (left) mouse button.

View Worksheet in Zoom Mode vs Normal Mode

Once you have opened a New Worksheet, you are faced with a blank Worksheet. In the Normal mode, you will see seven Columns displayed, each with a default Column width of 10 characters. The window displays 19 rows in the Normal mode.

MaxiPlan has an alternative viewing mode called the Zoom Mode. This gives you a bird's eye view of your Worksheets, or the large picture. In the Zoom mode, each cell is microscopic and the screen displays 65 Columns and 40 Rows. Rather than showing the contents of each Cell, the Zoom mode color codes the Cells by type. Thus at a glance you can see the layout of the Worksheet. Headings, data, and formulas are distinguished by color. To see the blank Worksheet in Zoom mode, click on the word Zoom in the upper left-hand corner of the Worksheet with the Select (left) mouse button. From the Zoom mode, the Normal mode is available by simply clicking on the word Normal which is now in the same spot on the window where Zoom appears in the Normal mode.

Purpose of the JANUARY PIPELINE Worksheet

The Pipeline Worksheet is a monthly estimated projection of income for a life insurance agent. Since a life insurance agent is compensated by the commission received for a sale, and not from the collection of an invoice as is the case with most businesses, it is critical to be able to estimate the expected income. An experienced agent can judge the probability of the successful completion of a sale. Many times they will present several alternative products over the course of a several weeks selling process. As the proposed insured asks for more presentations, they are committing themselves more and thus the probability of a sale increases. The model calculates a weighted projected commission income based on the probability of closing the sales currently in process.

Income is weighted by a probability factor because in reality not all of the cases presented will result in a sale. However, experience in the business leads to the ability to develop a good estimate of how many cases will close at the various stages of the selling process. In the Pipeline example, the agent is using the following probability factors for each selling stage:

Proposal	20%
Refinement	50%
Underwriting	90%
Renewals	70%

In addition, the agent does not receive his commission until the policy is actually delivered. For applicants submitted for full medical underwriting, the process of issuing a policy can be lengthy. Thus, in the model, we enter the weighted income in the month it is expected.

Setting Up Column Widths

The default Column width is 10 characters, but only 9 characters will be displayed. One character is left blank for spacing. When formatting the Column Width, you should consider the type of info you want to include in each Column. In our example, the following information is to be included. Room for the Column heading should be considered as well.

<u>Column Number</u>	<u>Column Contents</u>	<u>Column Heading</u>	<u>Column Width</u>
A	Text Data	Prospects/Clients	20
B	Numeric Data	Probability	6
C	Numeric Data	Gross Commissions	8
D	Numeric Data	January	8
E	Numeric Data	February	8
F	Numeric Data	March	8
G	Numeric Data	Total	8

To set the width of Column A, highlight one of the Cells in Column A by clicking on the Cell with the Select (left) mouse button. Then you will pull down the FORMAT Menu and select the Menu Item COLUMN WIDTH, and then the Submenu Item SPECIFY using the Menu or right mouse button.

You will then be presented with a Requester to key in the Column Width. Key in 20 and click on the OK button with the Select (left) mouse button. Column A will now be expanded to a width of 20 characters wide.

The process is repeated for column B where 6 is keyed in as the desired Column Width.

Setting the width of Columns C through G is done in the same fashion. However, rather than selecting one Cell in each Column, select a Range of Cells in one Row from Column C to Column G by using the Select (left) mouse button and dragging the pointer across all 5 Columns.

With the Menu (right) mouse button, you pull down the FORMAT Menu and select first COLUMN WIDTH and then SPECIFY on the Submenu. Again the same Column Width Requester will appear. Key in 8, followed by a click on the OK button with the Select (left) mouse button. Now the Columns C through G will have contracted by 2 characters to a 8 character width.

Column Headings

To key in a Column Heading, simply move the pointer to the Cell A1 in Column A, Row 1 and key in Prospect/. This should be followed by either

- pressing Return
- pressing Tab, or
- Move the Active Cell to A2 with the right arrow key.

At A2, key in: Client

Note: The Return Key Movement Option must be Right as opposed to Down to accept Data with the Right Arrow key. If the option is Down, then the Down Arrow key must be used.

All three actions will accept the data keyed into the Cell. Pressing the Return Key will move the Active Cell down to Cell A2, since a downward movement of the Active Cell is the default option of the Return key. This can be changed to either a movement right or no movement by selecting the OPTIONS Menu and then the RETURN KEY Menu Item.

If you are at cell A2, you should now select Cell B1.

In Cell B1 key in Gross. Again accept the data entry by one of the four methods outlined above and move the Active Cell to B2, key in Comm's.

Move on the Cell C1, key in the syllable Prob-. Repeat the acceptance method. In Cell C2 key in: ability. Finish keying in the Column Headings in the first Row as indicated in the above Chart.

Row Headings

Each prospect is placed in one of the three selling stages, and renewal clients are all listed together. Column A lists each client name under the appropriate Subheading.

In Cell A3, key in 1st Proposal. This is the First Selling Stage. In Cells A4 through A6 key in respectively:

A4	Hardy Hardware
A5	Acme Paint
A6	Mannie Motors

In Cell A7 key in: Total Proposal

Following the same procedure, key in the following text in the indicated Cells in Column A.

<u>Cell</u>	<u>Text</u>
A8	Refinement
A9	Carson Steel
A10	Jack & Jill
A11	Total Refine.
A12	Underwriting
A13	Capitol Goods
A14	Daily News
A15	Total Underwrit.
A16	Renewals
A17	Smith Electric
A18	Crescent Drugs
A19	Total Renewals
A20	Grand Total

Probabilities

Next to each stage of the selling process is the probability of successfully closing the sale for the cases at that stage. The probabilities are based on experience. Key in the probabilities at the indicated Cells.

<u>Cell</u>	<u>Probability</u>
B3	.2
B8	.5
B12	.9
B16	.7

Gross Commissions

Now that the Column and Row Headings have been established, it is time to start entering data for calculations. The Gross Commissions are inserted in Column B. Please note that MaxiPlan categorizes the data in a Cell by a default option. All letters are treated as text, all numbers are treated as numeric data, and Formulas created are treated as Formulas. To change the Data type, pull down the FORMAT Menu and select Menu Item FIXED using the Menu (right) mouse button.

The Gross Commission Schedule is as follows:

<u>Client</u>	<u>Cell</u>	<u>Gross Commission</u>
Hardy Hardware	C4	5,680.00
Acme Paint	C5	12,360.80
Mannie Motors	C6	3,400.00
Carson Steel	C9	50,645.00
Jack & Jill	C10	24,978.00
Capitol Goods, Inc.	C13	13,800.00
Daily News	C14	6,555.00
Smith Electric	C17	950.00
Crescent Drugs	C18	10,800.00

Entering Formulas

We are now finished entering the raw data into the Worksheet. Now it is time to create the model and develop some conclusions from the data.

First, we want to calculate the Weighted Income which is the product of Gross Commission times associated probability of completing the sale.

The Formula to calculate the Weighted Income will be placed at the Cell with the address which is the Column of the expected month of collection of the commission and the Row of the client's name.

Within each selling stage, the probability stays the same. Thus the reference to the cell containing the probability in the formula is an Absolute Cell Reference and is designated by placing a "\$" in front of both the Column letter and Row number of the Cell Address for the probability.

Conversely, since the reference to the Gross Commission is Partially Absolute, i.e. it is only constant for the Row, the "\$" appears only in front of the Row number, not the Column letter.

By making the cell reference either Absolute or Partially Absolute we speed up the process of replicating the formula to calculate Weighted Income using fill.

Before we begin, we should first evaluate when we think the income will be booked if the sale comes through. Typically sales that are higher in premium, and thus commission, take longer to close. Thus we have assigned the following booking months to each prospect. We have also listed the months for annual renewals.

Hardy Hardware	March
Acme Paint	January
Mannie Motors	March
Carson Steel	February
Jack & Jill	January
Capitol Goods	January
Daily News	January
Smith Electric	March
Crescent Drugs	March

Calculating Weighted Income with Absolute Cell References

Now we are ready to build our first Formula. Since Hardy Hardware is on Row 4, and March the anticipated booking month, is in column F, we will place the formula for the Weighted Income for Hardy Hardware in Cell F4 of the Pipeline Worksheet. To create the Formula we:

- click on the cell F4 with the Select (left) mouse button**

(This locates the Formula on the Worksheet.)

- click on the Equals Formula Icon with the Select (left) mouse button**

(This indicates a Formula will be keyed in the Cell.)

- click on B3**

(B3 is the Cell containing the probability of closing a sale for prospects in the 1st Proposal stage.)

- click on the Multiplication Formula Icon**

- click on C4, the cell containing the Gross Commission for Hardy Hardware**

- press Return Key to accept Formula**

The Active Cell will then move to the right and in Cell F4 will be displayed 1136.

Now we can convert the cell references to Absolute References. We again click on F4. The Formula is displayed in the Cell Contents Display and the results, or Value of the Formula, are displayed in Cell F4.

To make the referenced Cell containing the probability Absolute, move the pointer to the Cell Contents Display, placing it just in front of the "B" in "B3" and click with the Select (left) mouse button.

This will activate the Cursor in the Cell Contents Display. Key in a dollar sign "\$". this will be inserted in front of the B. Next, move the Cursor to in front of the "3" in "B3", again clicking with the Select (left) mouse button or by using the right arrow key. Insert a "\$" and press Return. Repeat the process to insert a "\$" in front of "C" in "C4". Accept the changes with the Return key.

To quickly calculate the Weighted Income for Acme Paint, click on Cell F4 again. Pull down the EDIT Menu with the Menu (right) mouse button and select the COPY Menu Item. This copies the Formula into the Clipboard, or temporary storage device. Then click on Cell D5 and pull down the EDIT Menu again with the Menu (right) mouse button. Now choose Menu Item PASTE. This will copy the Formula into Cell D5 and D5 will now display 2472.

When you again click on D5, the formula $=\$B\$3*\$C5$ will be displayed in the Cell Contents Display. Cell B3 will be referred to no matter where the Formula is copied, and the Column C is constant because it is the Column for Gross Commission. The Row number is relative to the Row number where the Formula is copied. MaxiPlan automatically will keep the Absolute and Partially Absolute references in line.

To continuing copying the Formula you can again use the PASTE Menu Item under the EDIT Menu. However, there are two alternative methods for using the Paste Command:

- **Pressing the F4 function key**
- **Pressing the right Amiga Key with the letter "P"**

In addition, you can access the Copy command in a similar manner by:

- **Pressing the F3 function key**
- **Pressing the right Amiga Key with the letter "C"**

Paste the Weighted Income Formula to the following Cell Addresses.

Formula Cell Address

Mannie Motors	F6
Carson Steel	E9
Jack & Jill Clothing	D10
Capitol Goods, Inc.	D13
Daily News	D14
Smith Electric	F17
Crescent Drugs	F18

When the Formula is copied to Cell E9 for Carson Steel, you will have to edit the Cell Contents to change the Cell reference for the probability of completing the sale. This is because Carson Steel is in the Refinement Illustrations selling stage, and thus the probability has increased to 50%. The cell reference \$B\$3 should be changed to \$B\$8. After it is changed, the new formula should be copied to the Clipboard and pasted on the cells to calculate the Weighted Income for the other prospects in the Refinement selling stage.

Similarly, the companies in the Underwriting stage and Renewals, should change the Cell reference for the probability in the formula to reflect the appropriate probability for their respective stages.

Your Worksheet will now show each individual weighted Income based on Gross Commission, probability of completion, and estimated month to book the sale. The Worksheet appears as shown below.

Summarizing Subtotals with the SUM Function

To aggregate the data at the proper subtotals, we again insert Formulas on the Worksheet.

Row 7 has the heading "Total 1st Proposal". Column C has the heading "Gross Comm's". We will create a formula that will calculate the total of Gross Commissions for prospects in the 1st Proposal selling stage by following the steps below:

- click on Cell C7
- click on the Equals Formula Icon
- click on the Function Formula Icon

(This will bring up the Function Selection Window. Scroll the window until you find the summation function represented by SUM(.).)

- double click on SUM()

- click on Cell C4 and drag to Cell C6

(This highlights the Range C4:C6. Simultaneously, this Range is inserted in the SUM Function in the contents of Cell C7.)

- press Return

The Active Cell is returned to C7, and Cell C7 displays the sum of Cells C4, C5, and C6 or \$21440.

Copying Summation of Subtotals

To continue the aggregation process, click on Cell C11, press F4 to PASTE the Formula in Cell C11.

At Cell C11, the Range in the SUM function is (C8:C10), since there were three prospects in the 1st proposal selling stage. However, in each of the remaining selling stages there are two prospects/clients.

To edit the contents of Cell C11, click on C11 and then click on the Cell Contents Display. Move the cursor to the colon, press the backspace key to remove the figure 8 and key in 9, Return.

Now we will want to paste this formula in Cells C15 and C19. Again click on Cell C11, press the F3 function key to Copy. Click on Cell C15, and press the F4 function key to Paste.

Replicating Across Several Months by Filling in a Row

We now want to sum the expected income from prospects in the First Illustration selling stage by month. This can easily be accomplished by Filling in the Formula across Row 7.

- click on Cell C7 and drag the highlight across to Column G.

(This highlights the range C7:G7)

Use the Fill command to automatically copy a Formula into the highlighted Range. The Fill command can be accessed one of three ways. Since we want to Fill Right, the three choices are:

- pressing F7
- pressing the Amiga Key with the letter "R"
- pulling down the COMMANDS Menu and selecting Menu Item FILL, and then selecting Submenu Item RIGHT

The simplest method for our application is to press F7. This same process can be repeated for rows 11, 15, and 19.

Add Emphasis with Color Text and Numbers

Now the Worksheet looks quite a bit filled in and it is increasingly difficult to distinguish one number from another. The use of color readily separates headings from subtotals, totals, etc.

Let's put the Subtotals in rows 7, 11, 15, and 19 in a different color from the normal data.

- select the Range (A7:G7)
- under **FORMAT** Menu select **Pen Color**
- select a desired Color among the choice of 8

Row 7 will now be displayed in the selected color. The actual colors will be determined by the selections you made using the **COLOR SELECTION** Menu Item under the **CONTROL** Menu or the **COLOR PALETTE** under the **FORMAT** Menu.

Calculating Yearly Totals

On a monthly basis we now know what income to expect. However, it may be helpful to measure what to expect for the entire quarter, first by selling stage and then as a grand total.

- click on **G7**
- click on the **Equals Formula Icon**
- click on the **Function Formula Icon**
- scroll to the **SUM** function
- click on the name **SUM**
- click on the **OK** button
- select **D7 to F7** to store Formula in the Cells.

You have just inserted the sum of the months January through March expected income from prospects in the 1st proposal stage for the entire year in cell G7.

Repeat this process for cells G11, G15, and G19. This will total the expected monthly income from respectively: Refinement prospects, Underwriting Prospects, and Renewal clients.

Monthly Totals for all Categories Combined

The final analysis is to arrive at the monthly total from all sources of income.

- click on cell C20
- click on the Equals Formula Icon
- click on cell C7
- click on the Plus Formula Icon
- click on the cell C11
- click on the Plus Formula Icon
- click on the cell C15
- click on the Plus Formula Icon
- click on cell C19
- press Return

This is the total potential income for the month of January. If every sale closes, the insurance salesman can expect \$129,168.

To find the remaining total monthly expected income and the grand total:

- select the Range (C20:G20)
- press F7 to Fill Right

Now you will observe cell G20 displays \$68,644 as its contents. This is the expected income for the first quarter of 1987, as of January 1987, for the insurance agent in our Pipeline Worksheet example.

As prospects move from selling stage to selling stage, they must be placed in another section of the Worksheet. If they decide against purchasing they must be deleted. This is accomplished by updating the Worksheet on a monthly basis.

Create New Monthly Template with SAVE AS

Since a major portion the next month's Pipeline will have many of the same customers, perhaps in the same selling stage, it is best to preserve the Worksheet before any changes. You should save it under a new name and alter the new Worksheet.

- pull down the **PROJECT** Menu
- select Menu Item **SAVE AS**
- key in a new name up to 16 characters
- click on **OK** button

Now there will be two versions of the same Worksheet. Pick one of them to alter and one to preserve. This process can be repeated each month before preparing the Pipeline Report for the new month.

Create a Chart of the Pipeline

As part of his analysis of his expected income, the insurance salesman is expected to put together a report to his superiors. To help highlight key areas of his analysis, he wants to develop a visual representation of his results.

For any Worksheet, as many as 8 Charts can be defined. To specify a Chart of the monthly total expected income:

- select the Range (**D20:G20**)
- pull down the **CHARTS** Menu
- select one of the **CHART** styles, such as **BAR**

This results in the display of a window where the **BAR** Chart is drawn. When this window is displayed, a new Menu for defining and using Charts is made available. To finish specifying the Chart depicting monthly expected income,

- pull down the **CHART CONTROL** Menu
- select the **SPECIFY** Menu Item

A Requester will be displayed for keying the Chart Title, specifying the Row or Column for extracting Labels, and finally to alter the Range of each of the axes.

Key in a two line title:

First Line - Quarterly Income Report

Second Line - January Estimate

In the section of the Requester for specifying the Row to pick up Labels, key in 2.

- **To accept these changes, click on the OK button.**

You will be returned to the window with the Bar Chart, which will now display the two line title and the labels. If not all of the labels show on the Chart, you should expand the Chart with the Sizing Gadget so that there is room to display all of the labels.

Printing a Chart

To print a Chart, you first draw the Chart. This is done by pulling down the CHART Menu, selecting DRAW Menu Item, and then selecting the Chart number to be drawn on the Sub-menu.

Once the desired Chart is drawn, you must pull down the CHART CONTROL Menu. By selecting the PRINT command the Chart will be produced in hard copy. However, the printer must be hooked up, turned on, and the printer configuration properly specified. Printer configuration information is under PREFERENCES in the WORKBENCH. See your Amiga Manual for further details on printer specifications in the Workbench.

Printing the Worksheet

Similarly, printing the Worksheet can be accomplished through a variety of methods. There are a variety of options as to including number pages, the date and time, a special title, with or without the grid. These decisions are made under the PRINT SETUP Menu Item under the PROJECT Menu.

Once the appearance of the output is determined, to print the actual Worksheet simply:

- **press F4 with the shift key**
- **pull down the PROJECT Menu and select the PRINT Menu Item.**

Chapter 20

FUNCTION REFERENCE

Many of the built-in Functions use either a list of numbers, a list of Cell Addresses, or a Range of Cells in their argument. For the sake of clarity, a List will be defined to be:

- Numbers separated by commas (3,6,8)
- Cell Addresses separated by commas (A2,A4,A6)
- Range of Cells separated by colon (B3:B7)
- Named Range (SALES)
- or any combination of the above.

Statistical Functions

MaxiPlan Statistical Functions calculate statistics on a list of entries. These may either be a Range in a Worksheet or an actual list of numbers in the Statistical Function argument.

AVERAGE

Argument: List

Returns: Numerical average (i.e. arithmetic sum of all inputs divided by the number of inputs)

Example:

AVERAGE(2,4,5)

Returns: 3.67

AVERAGE(B3:B5,8,10)

Returns: sum of B3 + B4 + B5 + 8 + 10 divided by 5

AVERAGE(SALES)

Returns: the sum of the Cells in the Named Range SALES divided by the number of Cells in the Range

COUNT

Argument: List

Returns: Number of items in the argument with Values including text or the Value 0

Example:

COUNT(2,4,5)

Returns: 3

COUNT(B3:C5)

Returns: 6 if all 6 Cells of the Range contain Values

COUNT(SALES)

Returns: 12 if Sales is 12 Cells of monthly data

MAX

Argument: List

Returns: Largest Value in Argument

Example:

MAX(2,4,5)

Returns: 5

MAX(A3:B17)

Returns: largest value in Range A3 to B17

MAX(SALES)

Returns: largest value in the Named Range Sales

MAX(8,9,SALES)

Returns: largest value in the Named Range Sales or of the numbers 8 and 9

MIN

Argument: List

Returns: Smallest Value in Argument

Example:

MIN(2,4,5)

Returns: 2

MIN(A3:B17)

Returns: smallest value in the Range A3 to B17

MIN(SALES)

Returns: smallest value in the Named Range Sales

STDEV

Argument: List

Returns: Square root of the Variance of the List

Example:

STDEV(1.89,10,2.70,0.05)

Returns: 3.7842502

STDEV(GRADES)

Returns: Standard Deviation of the named Range Grades

VAR

Argument: List

Returns: The population variance.

Example:

VAR(1.89,10,2.7,0.05)

Returns: 14.32055

VAR(GRADES)

Returns: Variance of the Named Range Grades

Financial Functions

MaxiPlan Financial Functions evaluate investments using variables such as interest rate, term of the investment, number of periods for compounding interest or payments, and the amount of payments. Often the stream of payments for an investment are entries into a Range on the Worksheet, thus a Range is often incorporated into the Financial Function argument.

FV

Argument: Expression for Payment, Expression for Interest Rate, Expression for number of payments

Returns: Future value of an equal stream of payments at a specified interest rate for a specified number of payments

Example:

FV(1000,.10,12)

Returns: 21384.283

FV(Payment,.095,48)

Returns: Future value of stream of payments defined by Named Range Payment at 9.5% for 48 payments

IRR

Argument: Expression for guess, Range reference

Returns: Approximate internal rate of return for a series of cash flow data entries in the referenced range. The referenced range must be a single column or row. Expression for guess is your initial estimate of the IRR. Since IRR is an iterative function, it will return ERR if convergence does not occur within 20 iterations to within .000001. If there is a change in the sign of the cash flow stream from an out flow to an in flow and back to an out flow, the IRR function can return multiple values. A normal guess would be between 0 and 1.0

Example:

IRR(.10,B7:B19)

Returns: IRR for data in the Range B7 to B19

IRR(.10,B7:C19)

Returns: Error (It did not converge to a value)

IRR(.10,PROFIT)

Returns: IRR for data in named Range Profit

NPV

Argument: Expression for discount rate, Range reference

Returns: Net Present Value of a stream of unequal future cash flows discounted by an interest cost of money factor. The interest rate is the applied at the beginning of the period. The range must be a single Column or Row.

Example: NPV(0.105,A3:A7)

Returns: The sum of the discounted net present value for every Cell in the Range A3 to A7 brought back to beginning of the first payment

PMT

Argument: Expression for Principal, Expression for interest, Expression for Number of Periods

Returns: The payment due at the beginning of each period to cover the repayment of the principal borrowed at the specified interest rate for the loan

Example:

PMT(10000,0.10,12)

Returns: 1467.63, the loan payment to repay a 10,000 loan at 10%

PV

Argument: Expression for Payment, Expression for Interest, Expression for Number of Periods

Returns: Present value of an equal stream of payments, or an annuity, discounted by the specified interest rate, over a specified payment period

Example:

PV(10000,0.1,6)

Returns: 43552.6

Logical Functions

Typically Logical Functions return a value of either 1 for TRUE or 0 for FALSE. However, some Logical Functions merely test for a type of data in a Cell. Among the Cell Type Test Functions is: ISERR and ISNA.

ISERR

Argument: Cell Reference

Returns: 1 if the Cell Value is an Error. 0 if the Cell Value is anything but an Error.

Example:

If Cell A32 contains ERROR, Cell A35 contains a valid value, and Cell A36 is Blank. Then

ISERR(A32)	Returns: 1
ISERR(A36)	Returns: 0
ISERR(A35)	Returns: 0

ISNA

Argument: Cell Reference

Returns: 1 if the Cell Value is NA or Blank. 0 if the Cell Value is anything but NA or a Blank.

Example:

If Cell A25 contains NA, Cell A26 contains a Blank, and Cell A27 contains a valid value. Then

ISNA(A25)	Returns: 1
ISNA(A26)	Returns: 1
ISNA(A27)	Returns: 0

The next set of Logical Functions assign a Cell Type or Logic Value to a Cell.

ERR

Argument: None

Returns: Assigns the Value Error to a Cell

Example:

ERR

Returns: Error

FALSE

Argument: No Argument required

Returns: Assigns the Value False to a Cell, or 0.

Example:

Normally used with other functions such as CHOOSE.

CHOOSE(3,FALSE,TRUE,FALSE,FALSE)

NA

Argument: None

Returns: Assigns the Value NA to a Cell.

Example:

NA

Returns: NA

TRUE

Argument: No argument required

Returns: Assigns the value True to a Cell, or 1.

Example:

Normally used with another function such as IF.

IF(B6 + 13,TRUE,D4)

The last set of Logical Functions make comparisons and test for a statement for validity or truth.

AND

Argument: A list of expressions separated by commas.

Returns: 0 if any element of an expression evaluates to 0. If all the expressions listed evaluate to non-zero, then AND returns 1.

Example:

AND(7,6)

Returns: 1

AND(B3:B8)

Returns:

0 if any of the Cells of the Range are zero

AND(7,5,0)

Returns:0

IF

Argument: comparison expression, true expression, false expression

Returns: Based on the results of the comparison, if the comparison statement is true, then MaxiPlan evaluates the true expression and returns that value. If the comparison is not true, i.e. False, then the false expression is evaluated and that value is returned.

Example:

IF(A3 > 5,23,55)

Returns: 23 if A3 is greater than 5, and 55 if A3 is less than or equal to 5.

This can also be used in a compound expression as follows:

IF(A = B,C,(IF(D < E,H,G)))

IF(B6 < 10,D4,D5)

Returns: contents of cell D4 if B6 is less than 10, or contents of Cell D5 if B6 is greater than or equal to 10.

NOT

Argument: Expression

Returns: The logical negation of the expression. Returns 0 if expression evaluates non-zero and returns 1 if the expression evaluates to zero.

Example:

NOT(0)

Returns: 1

NOT(1)

Returns: 0 or False

NOT(B6 > 10)

Returns: 0 if B6 does not equal 10, and returns 1 if B6 equals 10

OR

Argument: List

Returns: If all items in the list is 0, OR returns 0. If any item in the list is non-zero, OR returns 1.

Example:

OR(0,0,1,0,0,0)

Returns: 1

OR(A1,Profit)

Returns: 1 if A1 is non-zero, or if any Cell in the named Range Profit is non-zero

OR(A1 > 10,A1 < 20)

Returns: 1 if A1 is in the Range 10-20

Database Functions

The following functions are statistical functions which operate on a specified database range in the worksheet. They operate very similarly to regular statistical functions except rather than using all the data in a Row, Column or Range of Cells, a selection of data cells can be acted upon based on certain criteria. The criteria used must be described in a Database Criteria Range. Thus before any of the database functions can be used, both a Database Range and a Database Criteria Range must be named.

- **Each Database Function uses three types of arguments:**
- **Database Range - the Name of the specified Database Range**
- **Offset - the number of Columns or fields to the right of the left most column (field) to find the column or field upon which to perform the calculation dictated by the function**
- **Database Criteria Range - the Name of the Range describing the criteria for choosing which data to be included in the calculation**

The following is a simple Database Range which is used in the following examples of the Database Functions. The name of the Database Range is SALES.

Database Range Named SALES

CITY	ST	UNITS	REVENUE
Atlanta	GA	235	12,980
Mobile	AL	45	4,560
Chattanooga	TN	360	20,230
Pensicola	FL	89	9,250
Jackson	MS	56	6,790
Miami	FL	450	24,440
Savanagh	GA	25	3,150
Birmingham	AL	268	14,800
Melbourne	FL	189	11,760
Jacksonville	FL	101	9,680

Criteria Range Named FLORIDA

ST - Column
 FL - Matching Find Criteria

DAVERAGE

Average for Items MatchING Database Criteria

Argument: Database Range Name, Column number from left, Database Criteria Range Name

Returns: The average of entries in a Column or Field of a Database for Records matching a specified Criteria. This is the numerical sum of the entries in the Column for matching Records divided by the number of matching Records.

Example:

DAVERAGE(Sales,3,Florida)

Returns: The average number of units for sales transactions in the state of Florida where the cost of the sale is in the third column of the Database called SALES and the Find Criteria Range is called FLORIDA.

Result: 207.25

DCOUNT

Number of Items Matching Database Criteria

Argument: Database Range Name, Column number from left, Database Criteria Range Name

Returns: The number of entries in a Column or Field of a Database for Records matching a specified Criteria. This will count of the number of entries in the Column for matching Records.

Example:

DCOUNT(Sales,2,Florida)

Returns: The number of items in the SALES Database for Records matching the Criteria specified in the FLORIDA Database Criteria, with entries in the second Column of the Database named SALES.

Result: 4

DMAX

Largest Entry among Items Matching Database Criteria

Argument: Database Range Name, Column number from left, Database Criteria Range Name

Returns: Largest value for entries in the Column indicated for Records in the Database matching the specified Criteria

Example:

DMAX(Sales,3,Florida)

Returns: The highest value in the third Column of the Database SALES for the criteria FLORIDA.

Result: 450

DMIN

Lowest Entry Among Items Matching Database Criteria

Argument: Database Range Name, Column number from left, Database Criteria Range Name

Returns: Smallest value for entries in the Column indicated for Records in the Database matching the specified Criteria

Example:

DMIN(Sales,3,Florida)

Returns: The smallest value in the third Column of the Database SALES for the Database Criteria FLORIDA.

Result: 89

DSTDEV

Standard Deviation for Entries in a Specified Column or Fields Matching a Certain Criteria

Argument: Database Range Name, Column number from left, Database Criteria Range Name

Returns: The standard deviation for the entries in the specified column of the Database for Records matching the specified Criteria

Example:

DSTDEV(Sales,3,Florida)

Returns: The standard deviation for the entries in the third Column of the Database SALES for Records matching the Criteria described in the Criteria Range FLORIDA.

Result: 145.372581665

DSUM

Sum of Entries in Field of Database for Records Matching Specified Criteria

Argument: Database Range Name, Column number from left, Database Criteria Range Name

Returns: For Records matching a specified Criteria, the summarization of the entries in a specified Column or Field.

Example:

DSUM(Sales,3,Florida)

Returns: The sum of the entries in Column three of the Database SALES for Records matching the criteria described in the Criteria Range FLORIDA.

Result: 829

DVAR

Variance of Entries in Field of Database for Records Matching Specified Criteria

Argument: Database Range Name, Column number from left, Database Criteria Range Name

Returns: Statistical variance for entries in a specified Field for Records matching a Criteria.

Example:

DVAR(Sales,3,Florida)

Returns: The variance for the third Column for the Database SALES for Records matching the Criteria FLORIDA.

Result: 21133.1875

Mathematical Functions

Mathematical Functions use numeric data in their arguments and return numeric data.

ABS

Absolute Number

Argument: List

Returns: The absolute value of the expression. If input is positive then returns the input. If input is negative, returns the value as a positive.

Example:

ABS(-10)

Returns: 10

ABS(2,-3,9,-8)

Returns: 2,3,9,8

EXP

Exponent

Argument: Expression with a numeric result.

Returns: e raised to the power defined by the expression, where $e = 2.7182818285$

Example:

EXP(3.5)

Returns: 33.11545

INT

Integer

Argument: Expression with a numeric result

Returns: The integer part of the expression to the left of the decimal point of the results of the expression. If the expression is negative and not a whole number, the returned value is the next integer less than the expression.

Example:

INT(8.3)

Returns: 8

INT(-8.3)

Returns: -9

LN

Natural Log

Argument: Expression with a numeric result

Returns: Natural logarithm of the expression. The expression must have a positive result. LN is the inverse of EXP.

Example: LN(2.7182818)

Returns: 1, the log of e

LN(7.9)

Returns: 2.06686

LOG10

Log Base 10

Argument: Expression with a numeric result

Returns: Base 10 logarithm of the expression. The expression must be positive.

Example:

LOG10(123456.23)

Returns: 5.09151

MOD

Modulus

Argument: Expression for numerator, Expression for denominator

Returns: Remainder from division of numerator by denominator.

Example:

MOD(3,2)

Returns: 1

MOD(15,8)

Returns: 7

MOD(15,-8)

Returns: -7

MOD(-15,8)

Returns: -7

RAND

Random

Argument: No argument required

Returns: A pseudo random number between 0.0 and 1.0

Example: Can be used as part of a modeling.

$ABS = (10 * RAND)$

Returns: A random number between 0 and 10.

ROUND

Rounding off of number

Argument: Expression with numeric result, number of digits precision

Returns: The expression rounded to the specified number of digits or decimals. The second argument must be a whole number within the range -15 to 15. If the number in the second argument is 0, then only the integer of the numeric expression is the result. If the number is -1, then the result is a number rounded to the nearest 10, -2 the nearest 100, etc.

Example:

$ROUND(144.532, 2)$

Returns: 144.53

$ROUND(142123.255, 1)$

Returns: 142123.3

$ROUND(56734.5, -2)$

Returns: 56700

SIGN

Argument: Expression with numeric result.

Returns: 1.0 if the expression is positive and -1.0 if the expression is negative.

Example:

SIGN(3.5)

Returns: 1

SIGN(-5.2)

Returns: -1

SIGN(0)

Returns: 1

SQRT

Square Root

Argument: Expression with numeric result

Returns: Square root of the expression.

Example:

SQRT(2.0)

Returns: 1.414214

SUM

Sum Total

Argument: List

Returns: The sum total or addition of the data specified in the list.

Example:

SUM(5,6,7)

Returns: 18

SUM(A1,B1:B5)

Returns: $A1 + B1 + B2 + B3 + B4 + B5$

Trigonometric

Trigonometric Functions perform calculations on angles. The argument of a Trigonometric Function must be an expression which results in numbers of radians of an angle. To convert degrees into radians you multiply the number of degrees by $\pi/180$.

There are four categories of angles, or quadrants. The quadrants are defined by their position about the x-y axis as shown below.

IV	I
III	II

	Range in Degrees	Range in Radians
Quadrant I:	0 to 90	0 to 1.5707963
Quadrant II:	90 to 180	1.5707963 to 3.14159
Quadrant III:	180 to -90	3.141159 to -1.5707963
Quadrant IV:	-90 to 0	-1.5707963 to 0

ACOS

Arc Cosine

Argument: Cosine of the angle in radians. Input is the range -1 to 1.

Returns: The Arc Cosine of the Cosine, or the opposite of the Cosine of the angle. Output range is 0 to π .

Example:

ACOS(COS(3.1))

Returns: 3.1

ACOS(0.26750)

Returns: 1.3

ACOS(2)

Returns: Error because input is out of range.

ASIN

Arc Sine

Argument: Sine of the angle in radians. Input range is -1 to 1.

Returns: The Arc Sine of the Sine, or the opposite of the Sine of the angle. Output range is $-\pi/2$ to $\pi/2$.

Example:

ASIN(SIN(1.3))

Returns: 1.3

ASIN(0.35)

Returns: 0.35757

ATAN

Arc Tangent

Argument: Tangent of the angle in radians. Input range is any number.

Returns: Arc Tangent of the tangent of the angle in the argument, or the opposite of the Tangent of the angle. Result is always greater than $\pi/2$ and less than $\pi/2$.

Example:

ATAN(1)

Returns: 0.7853982

ATAN(TAN(3.14159/2))

Returns: 1.5707963

ATAN2

Arc Tangent Squared

Argument: Expression x, Expression y. Input range is any number.

Returns: The angle whose tangent is x/y expressed in radians. Output range is -PI to PI.

Example:

ATAN2(4,5)

Returns: 0.8960554

ATAN2(B3,C5)

Returns: Arc Tan of C5/B3

When x is	When y is	ATAN2(x,y)Returns	Quadrant
positive	positive	0 to PI/2	I
negative	positive	PI/2 to PI	II
negative	negative	-PI to -PI/2	III
positive	negative	-PI/2 to 0	IV

COS

Cosine

Argument: Angle expressed in radians

Returns: Cosine of the angle expressed in radians

Example: COS(3.2)

Returns: 0.99828478

COS(B35)

Returns: Cosine of the value on the Cell B35

PI

Pi

Argument: None

Returns: 3.1415926536

Example:

PI

Returns: 3.1415926536

SIN

Sine

Argument: Angle expressed in radians

Returns: Sine of the angle expressed in radians

Example:

SIN(1.41)

Returns: 0.987100

TAN

Tangent

Argument: Angle expressed in radians

Returns: Tangent of the angle expressed in radians

Example:

TAN(1.324)

Returns: 3.96932

TAN(B3)

Returns: Tangent of the Cell B3.

Index Functions

Index Functions perform calculations for referring to Cells indirectly.

CELL

Selects a Cell a certain number of Rows and Columns from the Active Cell

Argument: Column Offset, Row Offset

Returns: Cell Address a specified number of Columns and Rows from Active Cell.

Example:

CELL(0,-1)

Returns: Cell Address in same Column but up one Row.

CELL(2,-3)

Returns: Cell Address 2 Columns ahead and 3 Rows up.

CHOOSE

Selects an Item from a List

Argument: List Offset, List

Returns: Any number, value, formula, text string, Cell Address, Range, etc. in a List that is the number of entries to the right specified by the Offset value. The first item in the list is 0, the second is 1, etc. Offset can be any number between 0 and n. If the Offset is not a whole number, MaxiPlan converts to an integer. If the List Offset is greater than the number of items in the List, then an ERROR is returned.

Example:

CHOOSE(2,A1,3,Red,SALES)

Returns: Red

CHOOSE(3,5,6,7,8,9)

Returns: 8

CHOOSE(5,B4:B6,PROFIT)

Returns: ERROR

HLOOKUP

Horizontal or Row lookup in a Range

Argument: Expression on Index Row, Range, Row Offset

Returns: Contents of a Cell located in Column defined by the expression on the Index Row of the Range and the number of Rows Offset. The first Row of the Range is the Index Row. This Row must be in ascending order and is used to determine the Column to lookup data. The expression locates the Column for the lookup by finding an entry in the Index Row which is the biggest or greatest item less than or equal to the result of the expression. Once a Column is selected, it then finds the Row determined by the Row Offset where the first Row is counted as a 0 Offset, second Row as a 1 Offset, etc.

If the Offset is positive: HLOOKUP finds a Row further down the Range

If the Offset is negative: HLOOKUP returns an ERROR

If the Offset is 0: HLOOKUP returns a value in the Index Row

Example: The following Range has been named ATTENDANCE and is defined by the Cells (B1:F5)

	A	B	C	D	E	F
1	Year	1975	1980	1984	1985	1986
2						
3	Painting	42	35	53	40	20
4	Swimming	26	41	51	37	17
5	Tennis	15	22	36	25	27

HLOOKUP(1980,ATTENDANCE,4)

Returns: 22

HLOOKUP(1980 + 3,ATTENDANCE,2)

Returns: 53 because 1983 is the biggest number less than or equal to 1984.

HLOOKUP(1970,ATTENDANCE,3)

Returns: 0 because 1970 is not on the Index Row Range.

INDEX

Finds a Value in a Cell of a Range at Specified Column and Row Offset

Argument: Range, Column Offset, Range Offset

Returns: Contents of Cell is a pre-defined Range that is a specified number of Columns and Rows into the Range. The first Column of the Range is the 0 Column and the top Row is the 0 Row.

If the Offsets are non-integer, MaxiPlan converts them to integers

If the an Offset is negative, MaxiPlan returns an ERROR.

If the Offset is outside of the Range it returns an ERROR.

Example: Using the same example Range as in HLOOKUP.

INDEX(ATTENDANCE,1,0)

Returns: 1980

INDEX(ATTENDANCE,0,2)

Returns: 42

INDEX(ATTENDANCE,8,3)

Returns: ERROR

LOOKUP

Finds a Value in a Cell of a Row or Column Adjacent to an Entry in a Searchable Row or Column

Argument: Search Value, Single Row or Single Column Range which is in ascending order.

Returns: The Cell Contents of the Cell next to the Cell in the Searchable Row or Column with a Value less than or equal to the Search Value. Lookup is used to find an entry in paired data where one half of the pair can be estimated. A Value is found in the Searchable Column or Row which is still less than or equal to the Search Value. The Search Value establishes an upper limit to the search. Once an entry is found in the Searchable Column or Row, Lookup returns the Value in the Cell below if a Row Range is used or just to the right if a Column Range is used. It differs from HLOOKUP and VLOOKUP in that an Offset is not used, the Range must be either a single Row or Column that is adjacent to another Row or Column of data entries. Values outside of the Range return an ERROR.

Example: For the following Worksheet, we will find the inventory in stock for parts which are arranged in ascending part number in a Column with the inventory in stock in the adjacent column.

	A	B	C	D
1	Part No.	Inventory	Cost	Extension
2	345	30	1.20	36.00
3	347	17	.85	14.45
4	349	28	1.65	46.20
5	456	5	2.07	10.35
6	459	32	.65	20.80
7	467	16	1.98	31.68
8	680	45	.52	23.40

LOOKUP(349,A2:A8)

Returns: 28, the value in the Cell next to the Search Value 349

LOOKUP(450,A2:A8)

Returns: 5, since the Search Value 450 is greater than 349 and less than 456 it looks for the value next to 456

LOOKUP(700,A2:A8)

Returns: ERROR since the Search Value 700 is greater rather than less than 680, the highest entry in the Range

VLOOKUP

Vertical or Column Lookup in a Range

Argument: Expression on Index Column, Range, Column Offset

Returns: Contents of a Cell located in Row defined by the expression on the Index Column of the Range and the number of Columns Offset. The first Column of the Range is the Index Column. This Column must be in ascending order and is used to determine the Row to lookup the data. The expression locates the Row by finding an entry in the Index Column which is the biggest or greatest item less than or equal to the result of the expression. Once a Column is selected, it then finds the Column determined by the Offset where the first Column is a 0 Offset, second Column 1 Offset, etc.

If the Offset is positive:

If the Offset is negative:

If the Offset is 0:

VLOOKUP finds a Column further to the

VLOOKUP returns an ERROR

VLOOKUP returns a value in the Index

Example: The following Range has been named BIRTHWTS and is defined by the (A2:E11)

	A	B	C	D	E
1	Pounds	St. Mary	Memorial	General	Lutheran
2	1	45	98	120	56
3	2	120	232	325	131
4	3	356	776	878	402
5	4	428	853	1011	530
6	5	401	790	989	498
7	6	323	626	727	375
8	7	251	492	588	297
9	8	107	225	432	153
10	9	51	92	103	62
11	10	12	30	41	17

VLOOKUP(5.5,BIRTHWTS,4)

Returns: 498, since 5.5 is greater than 5 but less than 6, thus MaxiPlan looks along the Row for the 5 pobirth weights over 4 Columns or Column E

VLOOKUP(11,BIRTHWTS,2)

Returns: ERROR since 11 is beyond the Range

VLOOKUP(7,BIRTHWTS, 7)

Returns: ERROR since an Offsetof 7 is beyond the Range

Date Functions

Date Functions allow you to perform calculations based on a date entered in a Worksheet. MaxiPlan date functions convert a date into a Julian Calendar date which ranges between January 1, 1978 to December 31, 2077. The days in this range are numbered sequentially for easy reference and for calculations such as aging of accounting data, follow up files, etc.

DATE

Date in Julian Calendar Number

Argument: Year Expression, Month Expression, Day Expression

Returns: Converts the date expressed in year, month , and day into a Julian Calendar number. Only accepts dates between January 1, 1978 and December 31, 2077.

Example:

DATE(78,1,1)

Returns: 0

DATE(78,2,1)

Returns: 31

DAY

Number of the Day of the Month

Argument: Julian Calendar Date Expression

Returns: Number of the Day of the Month

Example:

DAY(0)

Returns: 1 since 0 is the MaxiPlan Julian Calendar Number for January 1, 1978

DAY(62)

Returns: 3 since 62 is the MaxiPlan Julian Calendar Number for March 3, 1978

MONTH

Number of the Month

Argument: Julian Calendar Date Expression

Returns: Month number of the Julian Calendar date between January 1, 1978 and December 31, 2077

Example:

MONTH(32)

Returns: 2 since 32 is the MaxiPlan Julian Calendar Number for February 1, 1978

MONTH(94)

Returns: 4 since 94 is the MaxiPlan Julian Calendar Number for April 4, 1978

NOW

Current Time

Argument: None

Returns: For Cells formatted with the TIME format option, returns the current time of day when worksheet is recalculated. The actual value is number of ticks calibrated at 1/50th of a second (i.e. 50 ticks per second). This can be used to calculate differences between times of several events.

Example:

NOW

Returns: 9:36 PM for a Cell formatted with TIME option when a recalculation is performed at 9:36 PM

NOW

Returns: 3889644 for a Cell formatted with GENERAL option when a recalculation is performed at 9:36 PM

TIME

Current Number of Ticks

Argument: Hours, minutes, seconds

Returns: Number of Ticks since midnight for the specified time. The Amiga DOS Operating System calculates time in 1/50th of a second (i.e. 50 ticks per second). Normally used with the TIME format option.

Example:

TIME(12,00,06)

Returns: 2160300

TIME(18,45,05)

Returns: 3375250

TODAY

Julian Calendar Number

Argument: None

Returns: The MaxiPlan Julian Calendar Number for the Current Date, or the number of days since January 1, 1978 till today. Usually used with the Date Format option.

Example:

TODAY

Returns: 3435 for the current date of May 29, 1987

WEEKDAY

Number Day of the Week

Argument: Julian Calendar Date Expression

Returns: The day of the week expressed as a number where Sunday is 1, Monday is 2, Tuesday is 3, etc.

Example: WEEKDAY(0)

Returns: 1 since 0 is the MaxiPlan Julian Calendar Number for January 1, 1978 and it fell on a Sunday

WEEKDAY(120/2)

Returns: 4 since $120/2 = 60$ is the MaxiPlan Julian Calendar Number for March 1, 1978 and it fell on a Wednesday

YEAR

Year Number

Argument: Julian Calendar Date Expression

Returns: Year number for Julian Calendar Number date between January 1, 1978 and December 31, 2077

Example:

YEAR(0)

Returns: 78 since 0 is the MaxiPlan Julian Calendar Number for January 1, 1978

YEAR(3670)

Returns: 88 since 3670 is the MaxiPlan Julian Calendar Number for January 19, 1988

Special Functions

MaxiPlan's special functions generally evaluate an expression and depending on the outcome of the evaluation chooses between two alternatives. These functions test for a TRUE condition, and then for example SAY one phrase if the expression is True or another expression if it is False. REFER function differs in that it is used strictly to link data between Worksheets.

COLOR

Chooses a Color Display based on a Test Expression

Argument: Test expression, True Color, False Color

Returns: Displays one of two alternative Colors for a Cell by evaluating a Test expression for a TRUE condition.

Example: For Cell C7 in the Worksheet below:

	A	B	C
1	Day	Units	Dollars
2	Mon	20	400
3	Tue	55	935
4	Wed	32	576
5	Thu	140	2100
6	Fri	15	375
7	Total	262	4386

`COLOR(SUM(C2:C6) > 5000,1,5)`

Returns: Output in Color 5, since 4386 is not greater 5000, thus the expression is False and the second False Color choice is used

REFER

Brings Data into one Worksheet from Another Worksheet

Argument: Drive Name:Drawer Name/Worksheet Name, Cell Name. Note: REFER must use a Named Cell not a Cell Address. If any blanks are in the names, the entire argument should be surrounded by single quote marks.

Returns: Data is pulled from one Worksheet to be used in another. The Worksheets can be on same or different drives. If data is pulled from a Worksheet on a different drive, the Drive must be incorporated in the Worksheet Name in the REFER function argument.

Example:

The Cell for summing sales in the Division One Worksheet is named TSALES1. To incorporate the data on the Consolidated Worksheet, at a desired Cell Address on the Consolidated Worksheet use the REFER function as follows:

`REFER('Test:Acme/Div One','Tsales1')`

Returns: The Value in Cell named Tsale1 the Division One Worksheet

SAY

Tests an Expression and if True produces Spoken Output

Argument: Test Expression, Spoken String, Cell Reference Note: the Spoken String must be surrounded by double quotes.

Returns: The Test Expression is evaluated. If it is False, nothing is spoken. If it is true, the Spoken String is processed. A Cell Reference may or may not be included in the spoken output. If the contents of the Cell Reference is a label or text, then you must use %s in the Spoken String. A reference to a Cell with numeric data must use %m.nf where m is the number of total digits in the number and n the number of decimal places you wish to be spoken.

Note: Experience users may observe that the Spoken String is in standard C language formatting. If the single cell in the Cell Reference contain a label then the address of the Cell is used. For cells referenced containing numeric data, the double precision floating point value of the cell is used.

Example:

SAY(TRUE(),"My MaxiPlan is a Fantastic Program")

Returns the spoken output in quotes since the True function always returns a True result.

SAY(A3 > 150,"A3 has the value %5.2f",A3)

Returns the spoken output in quotes if the contents of A3 actually is greater than 150. In the spoken output to refer to cell with numeric data you have to use the %m.nf format.

SAY(B5B9,"The highest selling sales region was %s",B4)

Returns the spoken output if the contents of Cell B5 is greater than that of Cell B9. The spoken output incorporates additional text to be spoken at the Cell Address B4. Since the data in B4 is a label or text, it must be referred to in the Spoken String by %s.

STYLE

Chooses a Style Display based on a Test Expression

Argument: Test Expression, True Style, False Style

Returns: If the Test Expression is True, the display will be in the Style option for True. A False outcome results in a display in the False Style option. Style options are numbered 0 to 7 and are as follows:

Style Number	Style
0	Normal
1	Bold
2	<u>Underline</u>
3	Bold & Underline
4	<i>Italic</i>
5	Bold & Italic
6	<u>Underline & Italic</u>
7	Bold & Underline & Italic

To retain the current format, -1 is selected as the Style Option for either the True or False styles.

Example:

STYLE(A3 > 150,3,4)

Returns: If A3 is greater than 150, then the Cell will be displayed in Bold and Underline. If the statement is False, the display is in Italics.

STYLE(B4 < 20,-1,1)

Returns: If B4 is less than 20, the Test Expression is True and the original Cell format is retained. If the Test Expression is False, then the Cell is displayed in Bold.

Installation

HOW TO INSTALL MaxiPlan

Installation of MaxiPlan is similar to that of any other Amiga program. It does require version 1.2 or later of Amiga Kickstart, thus do not attempt to install MaxiPlan without the correct Amiga Kickstart.

First: Make Backup Working Copies of MaxiPlan

MaxiPlan software is not copy protected. Thus it is simple and prudent to make several back up copies of your MaxiPlan software program. Before making back up copies, you should check the position of the Write Protection Notch of the original program disk and any accompanying data disks. To copy from a disk, the Write Protection Notch should be in the up position such that you can see through the notch. Thus you will not be able to accidentally copy over the contents of the original disk. The following steps explain how to install the program on either a single floppy disk drive system, a two floppy disk drive system, or a system with a hard disk. Once the Program Disk icon appears in the Workbench Window, you can copy the contents of the disk onto a blank initialized disk.

MaxiPlan 500 and MaxiPlan Plus can both be installed by following the steps listed below.

Single Floppy Disk Drive Systems

1. Boot Workbench from MaxiPlan Program disk. See your Amiga manual for more about loading the Workbench.

After it is loaded, the MaxiPlan Program Disk icon will appear on the Workbench Window.

AT THIS POINT, IT IS ADVISABLE TO MAKE YOUR WORKING COPIES OF THE MaxiPlan PROGRAM DISK. TO MAKE COPIES EJECT THE PROGRAM DISK AND INSERT A BLANK INITIALIZED DISK. THE SYSTEM WILL ASK FOR A NAME FOR THE DISK, KEY IN A NAME INDICATING IT IS A WORKING MaxiPlan DISK, AND ACCEPT THE NAME BY PRESSING THE ENTER KEY. THEN CLICK ON THE MaxiPlan PROGRAM DISK ICON, MOVE IT ON TOP OF THE BLANK DISK ICON AND RELEASE THE MOUSE BUTTON. YOU WILL BE ASKED TO SWAP DISK SEVERAL TIMES. SIMPLY FOLLOW THE PROMPTINGS TO COMPLETE THE COPYING PROCESS. THIS WILL COPY THE CONTENTS OF THE PROGRAM DISK TO THE BLANK DISK. THIS PROCESS CAN BE REPEATED AS MANY TIMES AS YOU WISH.

MaxiPlan Instalation

You should now set aside the original program disk and insert one of the working copies of the MaxiPlan Program Disk in the drive.

2.Double Clicking on the MaxiPlan Program Disk Icon

This will bring up a Window for the Disk displaying several Drawer Icons including the MaxiPlan Drawer.

3.Click on the MaxiPlan Drawer icon

A window will be displayed with an icon for the MaxiPlan program, you should click on this icon with the left mouse button.

4.Click on the MaxiPlan Program Icon

You will then be presented with the MaxiPlan Control Window shown below.

This is the point of entry into the MaxiPlan program. The window will be described in the following chapter: "ENTERING MaxiPlan: THE CONTROL WINDOW".

Two Floppy Disk Drive Systems

Installation of MaxiPlan on a two floppy disk drive system does not differ significantly from a one floppy system. Once the Kickstart Disk, and then the Workbench Disk have each been loaded, you should insert a MaxiPlan Program Disk in one floppy drive and then a blank initialized Disk in the second drive. Then when copying the original program disk you can avoid copying the original program disk, as well as not having to do any disk swapping.

Hard Disk Systems

After making a duplicate of the MaxiPlan Program disk, open one of the copies of the Program disk and copy the complete MaxiPlan Drawer to the root directory of the hard disk. This is very important or else you will loose access to the MaxiPlan Help Files if you only copy the MaxiPlan program. Also be sure to use the Root directory for copying the MaxiPlan Drawer.

GLOSSARY

Absolute Cell Reference - A method of referring to a cell address in a Formula such that it does not change, or remains constant when replicating the Formula.

Active Cell - The Cell address where the Cursor is currently entering Data.

Active Drive - The floppy drive or hard disk drive currently being accessed by the computer.

ALT - The abbreviation for the Alternative Key. When pressed with another key, it changes the Command executed by the key to another Command.

AmigaDOS - The Amiga's disk operating system.

Amiga Keys - The keys on either side of the space bar on the key board. When pressed with another key, it directs the execution of a Command.

The Left Amiga Key is used for System type commands, while the Right Amiga Key is devoted to substitute Program commands.

Argument - The expression upon which a Function acts

Backspace - The Backspace key moves the Cursor backwards and erases previously entered Data.

Back Up - The process of making an archive Copy of a Worksheet.

Boot - To start a computer. It comes from the phrase "to pick yourself up by your own bootstraps". The computer must first find a program to tell it how to run any other program.

Branching - The evaluation of an expression which considers several alternative subsequent actions. The action chosen is based on the results of the evaluation against some pre-determined criteria.

Calculation Order - The hierarchy for performing a series of calculations. The order could be by following interrelated Cell References, or by going from left to right across Rows, or up and down Columns.

Cell - The intersection of a Row and Column on a worksheet. This is where Data is entered.

Cell Address - The combination of Row number and Column Letter which designates the location of a specific Cell.

Cell Note - Either a written or spoken comment attached to a Cell to explain the contents of the Cell.

Glossary

Chart - MaxiPlan pictorial representation of data. A Chart can be displayed on the screen or printed in hard copy.

CLI (Command Line Interpreter) A program that allows the user to execute AmigaDos commands using the keyboard, as opposed to the Workbench/mouse approach.

Column - A vertical collection of Cells. A Column is designated by a letter name. MaxiPlan has 512 Columns.

Command - An instruction to the computer. Executing a Command can be as simple as pressing a function key or, clicking on a menu item. A complex command could entail constructing a series of functions in one statement.

Conditional Macro - A Macro Command which chooses between alternatives based on the results of evaluation of data.

Control Window - The first window to appear after MaxiPlan is loaded.

Copy - The process of duplicating the contents of either a Cell, a Range, or a Worksheet.

CR - This symbol stands for press the Return Key on the key board. Pressing the Return Key signifies your agreement with an entry.

Criteria - Parameters established for selecting Records in a Database.

Cursor - The character space where Data is currently entered. Always found in the Active Cell.

Cursor Keys - The arrow keys which move the cursor about the screen. The cursor can also be moved by the Mouse or by keying in a specific Cell Address.

Cut - Removing the contents of a Cell or a Range from a specific location. They will remain in the Clip Board Memory until they are Pasted into another location.

Data - The facts and figures that are entered into the Worksheet.

Database - A collection of Data that can be reorganized based on the specific criteria of an Index. Within MaxiPlan, any Range of Cells can be treated as a Database within the Worksheet. Up to 63 separate Databases can be defined for any one MaxiPlan Worksheet.

Default - A MaxiPlan convention that will prevail unless the user specifically designates an alternative available option.

DEL - The abbreviation for the Delete Key. The Delete Key removes entered Data at the Cursor location and moves the Cursor backwards.

Glossary

Delete - The removal of either Data with the DEL Key or Backspace Key.

- The removal of a Column or Row from the Worksheet. The deletion of a Column or Row is executed by selecting the Column or Row and then choosing the DELETE Menu Item from the COMMAND Menu.

- The selective removal of Records from a Database based on a pre-defined criteria.

Drawers - Places on the Amiga Workbench for programs or files. Drawers are the visual Icons representing AmigaDOS directories. Double clicking on a Drawer will open a Window displaying Icons representing ingingthe programs or files in the Drawer or Directory.

Dynamically Linked - The option to elect an automatic updating of a Chart as changes in the Data of a Worksheet occur. Altering the Chart will likewise change the Data in the Worksheet.

Display - Either the process of showing an image on the CRT screen, or a reference to the CRT itself.

Drive - A hardware device which stores and retrieves Data for later access. Amiga conventions name the first Floppy Disk Drive of a computer system Drive DF0, the second Floppy Disk Drive of a computer system Drive DF1, and a Hard Disk Drive or Fixed Drive is called Drive DH0.

Edit - Revising previously entered Data.

Enter Data- The process of keying in Data and signifying your acceptance of the correctness of the Data by pressing either the Return Key or the Enter Key.

Enter Key - The equivalent of the Return Key on the numeric pad of the key board. This is to designate your decision to enter the Data as keyed into to a specific Cell.

Entry - Data that has been keyed in and accepted.

Error Message - A MaxiPlan message which describes an unacceptable action or Command to MaxiPlan and the corrective action to be taken.

ESC - The abbreviation for the Escape Key. This key will undo any Data that has been keyed in but not entered.

Exporting a File - Formatting and sending a Worksheet File to another program.

External Reference - Referring to Data which resides in another Worksheet File. This can be accomplished by Linking Worksheets.

Extract - Selectively copying Records of a Database and pasting them onto a new area of the Worksheet.

Glossary

Field - One type of Data associated with a Database. For example, the name of customer is usually in one Field and their address in another Field of a Database of customers. A Record is not complete until Data is entered into every Field of the Database.

File - The name of a Worksheet and the associated Data that the computer uses to access a particular Worksheet.

File Name - The name the computer uses to access, retrieve, and refer to a particular Worksheet.

Fill - The process of automating the entering of Data or a Formula into a Range.

Find - Locating certain Records in a Database based on a pre-defined criteria.

Format - The attributes which define how either a Cell, a Range or an entire Worksheet will look or sound. Attributes to be defined include: resolution, color selection, type face, alignment, decimal places, with or without commas, etc.

Formula - A statement of a series of Commands which usually entails the usage of Functions. The Functions are combined by the usage of Operators.

Function Keys - The ten keys which are located across the top of the Amiga key board. Each Function Key performs a specific Command. One set of Commands is executed by just pressing the Function Key alone, another set is executed by simultaneously pressing the Shift Key while pressing the Function Key for another set of commands.

<u>Function Key</u>	<u>Function Key Alone</u>	<u>Function Key with Shift Key</u>
F1	Calculate Now	Save
F2	Cut	Print
F3	Copy	Align
F4	Paste	Paste Data
F5	Clear	Clear Data
F6	Select Cell	E Z Sort
F7	Fill Right	Sort
F8	Fill Down	Find
F9	Insert Row	Select A1
F10	Insert Column	Select Last Cell

Function - A Pre-defined formula that performs specific calculations or actions. MaxiPlan has over 70 built-in, pre-defined Functions. Every Function is comprised of two parts: the Function name and the Argument. The Function name tells the computer which type of pre-defined activity is to be performed, and the Argument tells the computer which set of Data is to be acted upon by the Function.

Gadget - A control device graphically represented on the Window for communicating with the program. A gadget is engaged by clicking on it with the Select (left) mouse button. Examples are Window Scroll Gadgets, Front/Back Window Gadgets, Close and Drag Gadgets.

Graph - A pictorial output of Data in a Worksheet. Also called a Chart.

Help - The support available with MaxiPlan to address problems as they occur with your usage of the program. Help is available from four sources:

1. On-Line Help which can be accessed at any point in the program with the Help Key. This brings up additional descriptions and suggestions which is context sensitive to the point in MaxiPlan where the Help Key is pressed.
2. Error Messages which prevent you from incorrectly interacting with MaxiPlan.
3. The Manual including the Tutorial and the Reference.
4. Tech Support from Oxxi, Inc. at (714) 999-6710 9:00 am to 5:00 pm Pacific Time Monday through Friday.

Icon - A graphic image on the Workbench that represents a computer object such as a Disk Drive, Program or File.

IFF (Interchange File Format) - An Amiga software standard that allows for the interchange of graphic and sound files among different types of programs from different program developers. IFF supports numeric data, dates, pictures, text and sound.

Importing a File - Accessing and using a Worksheet File from another Spreadsheet program.

Insert - The Command on the Command Menu which adds a new Column or Row between existing Columns and Rows of a Worksheet.

Interactive Macro - A Macro which pauses during its execution and allows for user input of Data to direct the Macro's execution.

Key In - Enter data into a Worksheet by typing in the data from the keyboard.

Key Stroke - Pressing a key on the key board.

Kickstart - The part of the Amiga's operating system needed to boot the Amiga and run any program. On the Amiga 1000, Kickstart is loaded from disk into a protected area of RAM (called RAM-ROM); the Amiga 500 and 2000 models have Kickstart embedded in the hardware ROM.

Label - The Text entered into a Cell of a Column or Row which describes the contents of the Cells within the Column or Row.

Linked Worksheets - Worksheets which provide Data for usage by another Worksheet.

Literal - Text output.

Load - The process of retrieving MaxiPlan from the disk into the computer.

Glossary

Location - The Cell Address or Range Name of the Data.

Macro - A mini-program you can construct using the Macro Language of MaxiPlan Plus to execute repetitive tasks or calculations. A Macro remembers a complicated series of key strokes, mouse movements, menu selections, functions, formulas or cell references to be replayed at any time with one key stroke.

Macro Language - A collection of special Functions which automate many of the commonly used actions within a Worksheet such as Copy, pulling down a Menu, or referring to a specific Cell. It is a type of shorthand for building mini-programs. Macro Functions are only available with MaxiPlan Plus.

Macro Worksheet - This is a special type Worksheet associated with any MaxiPlan Plus Worksheet that contains all the mini-programs or Macros for the Worksheet. The Data entered into a Macro Worksheet are formulas which make up mini-programs that use the Data in the Worksheet or other Worksheets if a linking Macro is used. Normal numbers and text Data are not entered into a Macro Worksheet.

Mail Merge - This is special Utility for formatting Data in a Worksheet for export to a word processing program for insertion in forms, form letters, or mailing labels.

Menu - A collection of Commands that can be executed with the Mouse. A Menu is accessed or popped down by moving the Pointer while pressing the Menu (right) mouse button on the name of the Menu on the Menu Bar.

Menu Bar - The series of Menu names across the top of the MaxiPlan Worksheet.

Move - The action of cutting or copying a Cell or Range of cells and pasting the Cell or Range of cells at another location on the Worksheet.

Multitasking - The ability of a computer to do more than one task at a time; i.e. run more than one program at the same time.

Nested Parenthesis - The hierarchy of calculations is determined by placing each particular calculation within a series of parentheses. The first statement to be evaluated is in the inner most set of parenthesis. The results in the first calculation are used by the statement of the next set of parenthesis outward. The results of the second calculation are used in the statement in the next parenthesis, and so forth until all statements have been evaluated.

Operators - The actions performed within a Formula.

Operators include:

Arithmetic Operators

+

-

*

Action

Add

Subtract

Multipy

Glossary

/	Divide
=	Equam to
Logicam Operators	Action
=	Equam to
<	Less than
< =	Less than or Equam to
>	Greater than
> =	Greater than or Equam to
< >	Not Equam to
^	Raise to the Power

Operating System - The software program which manages the hardware devices such as the screen, disk drives, etc and manages the interface of application programs such as MaxiPlan with the hardware.

Password - A code that only allows certain users to have access to Protected Cells.

Paste - Place the contents of a Cell or Range in a new location on the Worksheet.

Pointer - An object, used for making selections, that moves on the screen as you move the mouse. The standard Amiga pointer is an arrow.

Protection - Limiting access to certain areas of a Worksheet to specific users by requiring them to identify themselves with the usage of a Password.

RAM (Random Access Memory) - Storage residing on a computer chip, any part of which can be read or written in a non-pre-defined, or random order as opposed to a sequential order like reading a book. This memory is used by the computer for storing data and executing its instructions.

Range - A collection of contiguous Cells in a Worksheet. A Range is specified by the Cell Address of the upper left hand Cell and the Cell Address of the lower right hand Cell separated by a colon (:). Example -A2:B5

Range Name - A Text character name for a Range for identifying a Range by using meaningful text rather than by the Cell Addresses included in the Range. For Example, all the Cells in Row 3 may contain Sales Data. Thus naming the Range of Cells in Row 3 "Sales" enables you to Reference the Range in Formulas as "Sales".

Record - The information associated with one item from the population of items included in a Database. A different aspect or attribute of the item is entered into each of the Fields of the Database in order to fully describe the Record or item.

Record a Macro - MaxiPlan can be set up to automatically remember and store (Record) a series of key strokes, Menu selections or mouse movements.

Reference - Citing another Cell for use in a Formula.

Glossary

Relative Cell Reference - A method of referring to a cell address in a Formula such that it does change when replicating the Formula.

Requester - A graphic box displayed on the screen which contains information and often requires the user to key in certain information such as a File Name. Usually the user must click on a button to either accept his entered data or to abort the current activity in MaxiPlan before MaxiPlan will allow the user to proceed further with the program.

ROM (Read Only Memory) - Computer storage, similar to RAM, except that it can only be read; the computer is not capable of writing to ROM memory. ROM is often used to store computer instructions that don't change such as the Amiga's Kickstart program in both the Amiga 500 and 2000.

Row - Horizontal collection of Cells usually identified by a number. MaxiPlan has 65,530 Rows.

Save - Archive the latest version of a Worksheet.

Save As - Making a duplicate copy of a Worksheet and saving it under a different file name.

Scroll Bar - Scroll Bar Gadgets allow the user to view information in the Window beyond the current viewing area of the Worksheet.

Scrolling - Changing the set of displayed Rows or Columns.

Select - Choosing a Cell, a Menu, a Menu Item, or a Function.

Sizing Gadget - A gadget that allows the user to resize the Window.

Sort - Rearranging the order of Records that are displayed in a Database according to a specified criteria.

Spreadsheet - The generic name for software programs such as MaxiPlan that are comprised of Cells and Rows for entering data, primarily for mathematical manipulation of the data.

Text - Alpha characters.

Tools - An Amiga term for a program running on the Workbench. The Notepad, Icon Editor, and Graphicraft are Tools.

Utility - A pre-set MaxiPlan task, such as Importing a Lotus 1-2-3 Worksheet or creating Mail Merge files.

Value - Treating a Number character numerically as opposed to treating it as a Text character.

Glossary

Window - A framed area of the screen that can contain an independently running program and is usually manipulated with gadgets. The Amiga's multitasking operating system allows it to display many windows simultaneously.

Workbench - The Amiga's icon-based user software which allows the user to manipulate files, run programs, and perform other Amiga functions.

Worksheet - The collection of associated data including numeric data, labels, formulas, and named ranges displayed as Rows and Columns and saved to the disk as a MaxiPlan File name.

Zoom - Alternating between the regular view of the Worksheet and a reduced view which allows the display of more Rows and Columns.



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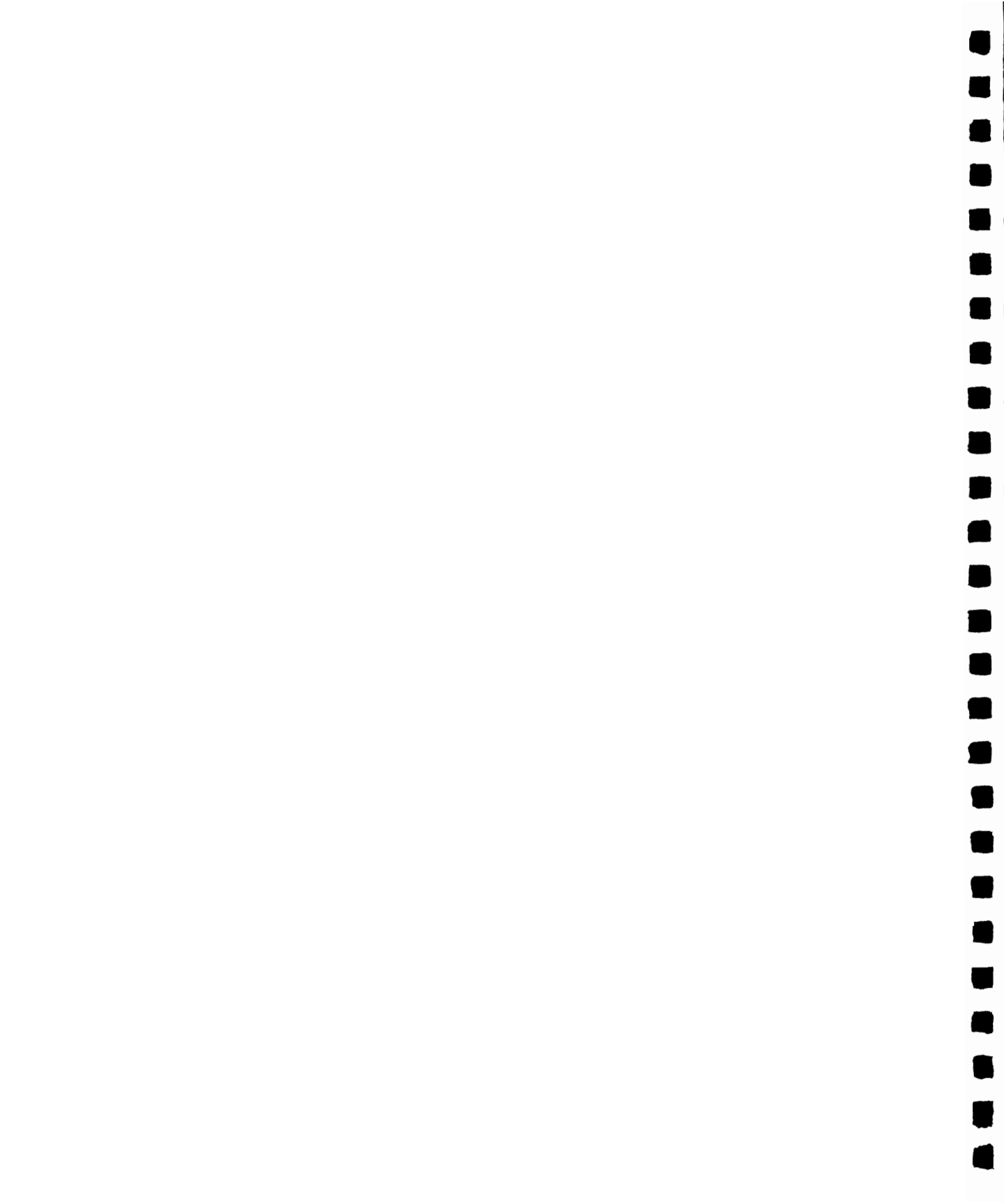
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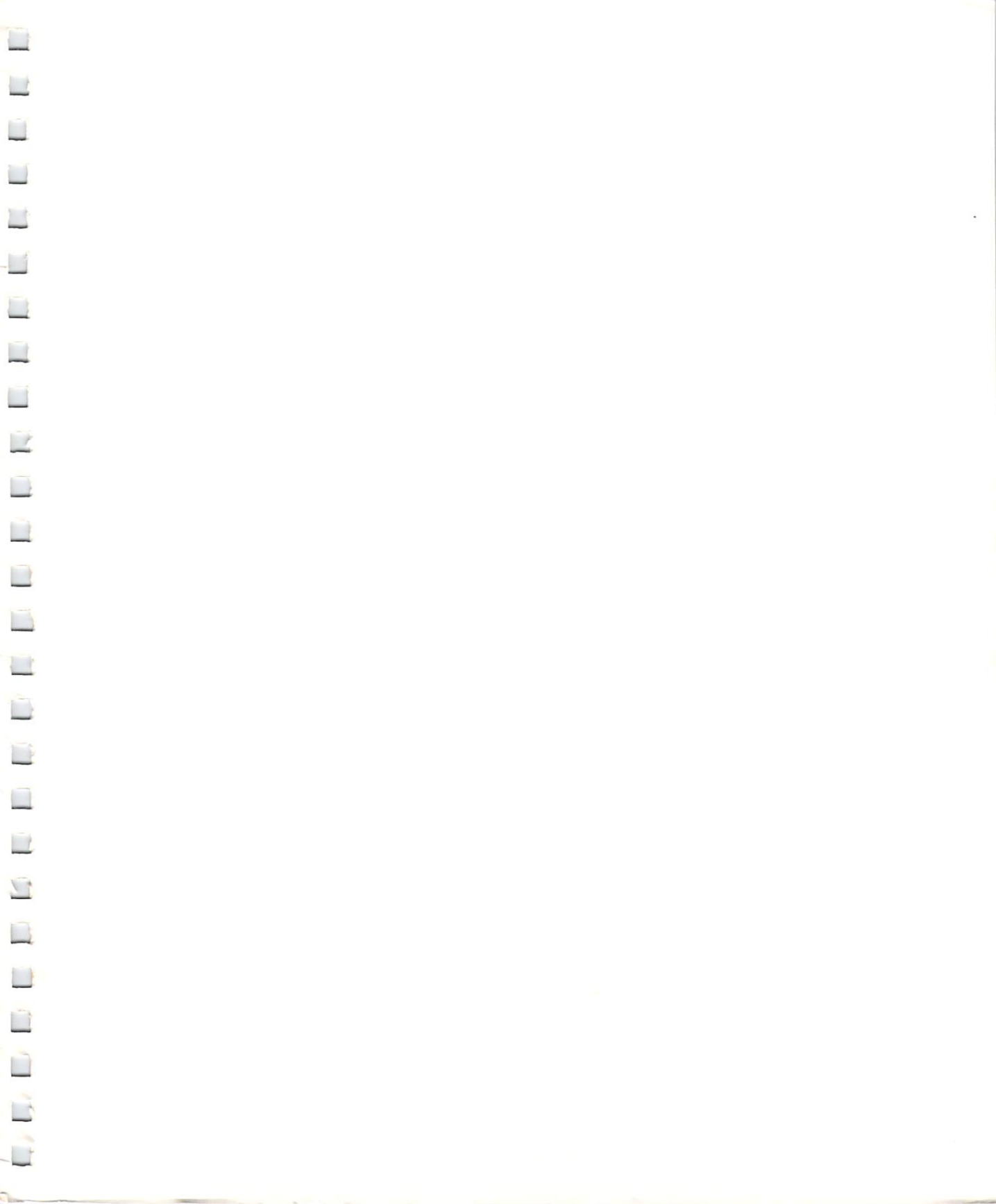
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